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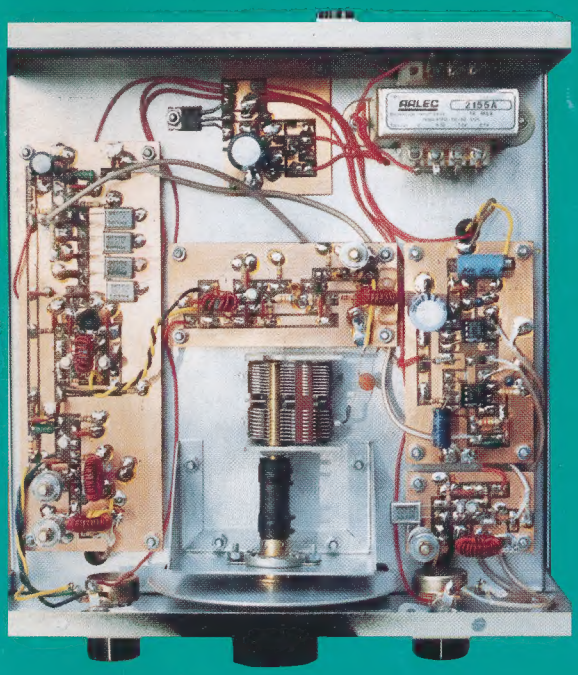

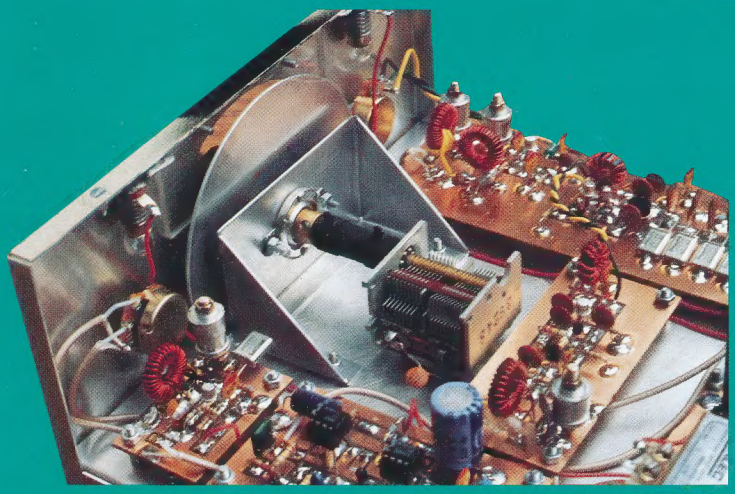

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AMATEUR RADIO

THE WIA RADIO AMATEURS JOURNAL

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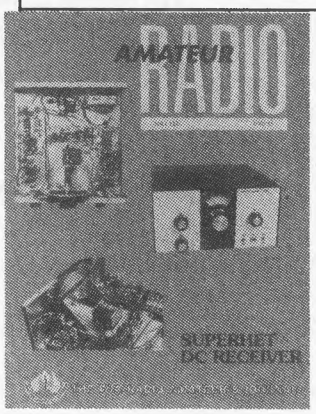

Cover

A homebrew project for those winter evenings. Drew Diamond VK3XU has combined the best of both worlds with his unique Direct Conversion Superheterodyne combination. See article on page 8 for full details.

Why Join The WIA?

This may be the first copy of Amateur Radio you have seen. If so, we're pleased to be with you, and we'd like you to stay! We know a bit about you: do you know who we are? What do we know about you? One thing is that you have some interest in radio communication and you have an amateur licence or are probably studying to get one. you are probably male, but one in ten of you may be a young lady (irrespective of age). You may have once belonged to the WIA, and decided for various reasons not to continue. You may have considered joining but never actually "got around to it". You may even have a violent aversion to us! We have been called ignorant, smug, pompous, biased, parochial, paranoid and out-of-touch, but also aware, informative, interesting, wide-ranging, essential, internationalist and on-the ball! We have been so described by some of our members (or ex-members). But who are we? WE ARE OUR MEMBERS! And so also are most of you.

You may, as members, change us into a different organisation altogether; if there are enough of you who want to do it. Some of us, those who comprise Executive and its various sub-committees, have been described as an entrenched minority of minders and persauders, either brain-washed or brain-washing! But we are simply amateurs who have seen (or been shown) a job to do and accepted the challenge to do it. You, and you, and you (yes, and you too!) are free to take our places. We are only "entrenched" because new volunteers are conspicuously absent. We need you, whether you have been a member for years, just joined, or still thinking about it, because from you must come those who will replace us. And if you do not replace us, what then? Fairly obviously, we will slowly fade away. So what?

Here is where about half Australia's radio amateurs differ quite strongly from the rest. The pro-WIA group are aware that without strong national organisations amateur radio might only have evolved into a pale shadow of what it is. It might well by now have ceased to be, or, less drastically, have become no more than the Citizen's Bands today, restricted to short range and low power with only one or two bands instead of 15 from MF to microwaves, and more still at even higher frequencies. Admittedly there are many more CB operators than amateurs, but this is for the dual reasons that no examination is needed for a CB licence and it may be used for a number of commercial purposes. Many CBers "step up" to amateur radio after acquiring a taste for radio on CB, and we welcome them to our wider fields.

The others, mostly not WIA members, represent several viewpoints. Some, of course, as in most human activities, just don't care. They, the apathetic ones, are probably a very small minority, since the effort of studying for and passing the amateur licence exams implies a certain amount of energy and enthusiasm. Some of the non-members have a strong aversion to anything that sounds like compulsory unionism, and we must admit there are some parallels. Unions achieved working conditions which individual workers could not, and they achieved their aims by their bargaining power, which was simply weight of numbers. Not all Australian unions have enforced compulsory membership, but many have. "No ticket, no job"! There was then no question of non-members enjoying conditions to which they had not made a contribution. Membership of the WIA has never been compulsory, and non-members may enjoy conditions which WIA negotiation with Government has produced, or WIA funds have paid for. Whether this is fair to all may be debated at length, but not here and now!

Probably most of those who

EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

Wireless Institute of Australia

The world's first and oldest National Radio Society - Founded 1910
Representing Australian Radio Amateurs - Member of the International Amateur Radio Union
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Int'l Travel Host Exch:	Ash Nallawalla	VK3CIT			

Kevin Olds VK1OK

were, but are not now, WIA members, have left us because we wrote, said or did something at which they took umbrage. The last time I quoted an American President I named the wrong man, but I think it was Lincoln who made the well-known comment about pleasing some of the people all the time, all of the people some of the time, but never all the people all the time. He wasn't wrong! Some of those who have been displeased by WIA actions have very long memories. I think Bill Roper has a comment on this in WIA News.

And then there are those who say they cannot afford the subscription. We know the economic state of the nation could be better, and is probably getting worse. We know there are amateurs whose only income is an inadequate pension or other benefit; but anyone who can afford the cost of a licence and still keep the wolf from the door should not find the WIA subscription prohibitive. Consider the cost of other things and compare in value for money. Perhaps some other items are less necessary?

To look on the bright side, if more of you join us we will be able to look after your needs even better. "Economies of scale" is not just a catch phrase. Future subscription rises may not be so necessary. More of you will become available to fill positions on your Divisional Council, or on Executive and/or the various sub-committees. We need new blood. Some of us may even then be able, finally, to leave our trench and let you jump in! **ar**

WIA NEWS

Bill Roper VK3ARZ General Manager & Secretary

Trophy

As the result of a submission from Gil Griffith, VK3CQ, supported by a group of CW enthusiasts in Australia and New Zealand, the WIA has now added another contest trophy to those already available.

The "Clive Burns Memorial Trophy", to be inaugurated in 1990, will be awarded each year to the Novice, or NAOCP holder, who achieves the highest score in the CW section of the annual VK Novice Contest.

The late Clive Burns, VK3CQL, who died in 1987, gave unstintingly of his time and expertise, throughout his years as a radio amateur, to encourage newcomers into the fascinating hobby of amateur radio. He particularly promoted interest in high quality CW operation.

In 1983 Clive established the daily "Earbashers" net on 80 metres through which he, and a number of other radio amateurs, helped listeners and participants to improve their CW skills or upgrade their qualifications.

Many radio amateurs, whether dedicated CW operators or not, both in Australia and elsewhere, acknowledge their debt to Clive.

This trophy has been established as a memorial to Clive and, in continuation of his years of effort, as an encouragement

WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts	1990 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Ted Pearce Jan Burrell Ken Ray	VK1AOP VK1BR VK1KEN	3.570 MHz 2m ch 6950 70cm ch 8525 2000 hrs Sun	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta) 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours	Roger Henley Peter Balnaves David Horsfall Mon-Fri 1100 - 1400 Wed 1900 - 2100)	VK2ZIG VK2CZX VK2KFU	(R Denotes repeater) Times 1045 and 1915 on Sunday 1.845 MHz AM, 3.595 SSB (1915 only), 7.146 AM (1045 only) 10.125 SSB (1045 only), 28.320 SSB, 52 120 SSB 52.525 FM 144.12 (SSB), 147.000 FM(R) 438.525 FM(R) 584.750 (ATV Sound) 1281.75FM (R) Relays also conducted via many repeaters throughout NSW.	(F) $59.00 (G) (S) $47.00 (X) $33.00
VK3	Victorian Division 38 Taylor St Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey 0900-1600 Tue & Thur	VK3PC VK3XV VK3XLZ	1.840 MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President Secretary Treasurer	David Jones John Aarsse Eric Fittock	VK4NLV VK4QA VK4NEF	1.825, 3.605, 7.118, 14.342, 18.132, 21.175, 28.400, MHz 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Don McDonald Hans van der Zalm Bill Wardrop	VK5ADD VK5KHZ VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.00 Adelaide, ATV 444.250 Mid North (NT)3.555, 146.500, 0900 hrs Sunday	(F) $65.00 (G) (S) $52.00 (X) $39.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 474 2626	President Secretary Treasurer	Alyn Maschette Bruce Hedland - Thomas	VK6KWN VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115,14.175, 21.185, 28.345, 50.150, 438.525 MHz Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury)147.225(R) 147.250 (R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 3.560 at 1930 hrs.	(F) $56.00 (G) (S) $45.00 (X) $30.00
VK7	Tasmanian Division PO Box 1010 Launceston TAS 7250	President Secretary Treasurer	Mike Wilson Bob Richards Peter King	VK7ZWW VK7NRR VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) $63.00 (G) (S) $50.00 (X) $38.00

VK8 (Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28 MHz).

Note: All times are local. All frequencies MHz.

Membership Grades
Full (F) Pension (G)
Needy (G) Student (S)
Non receipt of AR (X)

Three year membership available to (F) (G) (X) grades at fee x 3 times

to the promulgation of CW activity in amateur radio in Australia.

The winner of the "Clive Burns Memorial Trophy" each year will receive a suitably engraved, unique wall plaque to be retained permanently.

Postage

The cost of **postage alone** for sending mail from the Executive Office to members and prospective members during the 1989 calendar year was $9045.69. In addition, the total postage costs for mailing Amateur Radio to members each month totalled $37,269.92. That's a lot of stamps!

Noticing similar trends with some overseas amateur radio societies, the WIA has decided to encourage members to enclose a "self addressed, stamped envelope" when writing to the Executive Office and requiring a reply. Typical examples of this are when you forward a HAMAD for publication in Amateur Radio magazine, or are requesting member service information.

If every member did this, it would certainly help the finances of the WIA. However, remember that this is only a request and is not compulsory. You will still receive an acknowledgment of your HAMAD, or a reply to your enquiry, whether you forward a "self addressed, stamped envelope" or not.

June Issue of AR

As mentioned previously, the June 1990 issue of Amateur Radio magazine will be a special "**Test Equipment**" issue. The Editors are seeking articles on construction of test equipment, modification of test equipment, and test procedures for this special issue.

Several authors have already submitted articles for this special issue of your magazine. However, time is fast running out if you want your test equipment article to be included.

A prize of a year's free membership of the WIA will be awarded to the author of the test equipment article that is judged to be the best of those published in this special issue of Amateur Radio magazine.

Intruder Watch

At the WIA/DoTC Joint Meeting held in Canberra in February 1990, DoTC agreed to regularly supply to the WIA details of intruders removed from the amateur bands. DoTC also requested that the "WIA Intruder Watch reports, instead of interspersing full details of problems that are insurmountable at this time (such as Indonesians on 10 metres), should prioritise the reports so that important problems stand out."

Subsequent to these discussions, the WIA has received a letter from Mr R Wyeth of the Radiocommunication Operations Branch of DoTC. Amongst other things, Mr Wyeth says:-

"I would like to express the Department's appreciation for the efforts and interest by your members in providing the (Intruder Watch) information. I can assure you that you are providing a valuable service in that part of the spectrum which is regarded as self-regulating.

Presently, because of limited resources, monitoring programs are undertaken on a demand basis. The Department sees the amateur bands as generally well behaved and free of problems that exist in other parts of the spectrum. Consequently, the need to spend valuable time in these bands is minimal. It is on the basis of your reports that monitoring is initiated.

Any instances of intrusion by Australian stations notified are immediately investigated.

The Thai fishing boats in Darwin harbour allegedly using 28 MHz were inspected, however no evidence of use of amateur frequencies could be established. Monitoring however has disclosed numerous Asian non amateur transmissions exist and that they originate as one would expect from outside Australia's sphere of responsibility.

Complaints have been received directly from amateurs concerning unlicensed commercial operators using amateur bands especially the 2 metre band. These have been investigated and have resulted in several prosecutions.

As you are aware, the Intruder Watch Report focuses on the HF spectrum and nearly all the intrusions are by overseas operators. Before any breaches are brought to the attention of the responsible administration, the Department must positively identify the country of the offending station. This is not an easy matter as the callsigns are generally illegal and extensive monitoring must be undertaken. To complicate the situation further, the intruders frequently only appear after hours or at irregular intervals. This situation should improve markedly when the HF Direction Finding equipment on order becomes operational later this year. The Department will be in a better position to identify the intruders once the equipment is installed.

Notwithstanding these limitations, the Department endeavours to identify all intruders so corrective action can be implemented."

Are **you** an active member of the WIA Intruder Watch team?

WICEN and Newcastle Earthquake

Amateur radio operators and the Wireless Institute Civil Emergency Network (WICEN) did a tremendous job during the recent Newcastle earthquake disaster. All too often in Australia the valuable assistance and contribution by radio amateurs in times of emergency is overlooked in the post disaster publicity. Cyclone Tracy in Darwin is perhaps the most notorious example of this.

Therefore, it is gratifying to the amateur radio service in Australia that official recognition has been given to the Newcastle and Lake Macquarie WICEN group for their invaluable assistance in the Newcastle earthquake disaster.

In a letter dated 15th March 1990, addressed to Philip Greentree, VK2IW, the Secretary and Operations officer of the Newcastle and Lake Macquarie WICEN, the Lord Mayor of Newcastle, Alderman John McNaughton, wrote the following:-

"I acknowledge receipt of your report on the activities of WICEN during the December 28 earthquake.

The report has been noted with interest and forwarded to the consultant preparing the official record of the disaster.

I would also like to take this opportunity to thank you and the members of your organisation for your immediate response to assist the City during the difficult days immediately following the devastation.

Your support is gratefully acknowledged and appreciated."

Philip, VK2IW, told the Executive Office that a full story on the amateur radio involvement during the earthquake, complete with photographs, will shortly be submitted to Amateur Radio magazine for publication.

In another recognition of the magnificent work performed by WICEN during the Newcastle earthquake, the local WICEN was invited to take part in the first ever national radiothon. This event occurred on Sunday 18th March when Newcastle ABC radio broadcast for 22 hours through 142 AM, FM and shortwave stations across Australia to raise money for the Newcastle Earthquake Appeal.

A full HF and VHF station was established by WICEN and many stations were worked. All stations contacted qualified for the Newcastle Brick Award, to help rebuild Newcastle with amateur radio bricks.

Amateur stations, as well as SWL's, can write to Newcastle-Lake Macquarie WICEN, C/o ABC Radio, Newcastle, NSW 2300, in order to obtain the award.

Amateur Exams

As everybody should know by now, the last radio amateur examinations conducted by DoTC took place in February, and all future amateur examinations will be conducted by DoTC approved external agencies.

Although the devolvement of amateur examinations has the potential to provide considerable benefits to the amateur service in Australia, such as after hours and weekend examinations, and more frequent examinations, nevertheless there are some early problems.

In letters forwarded to a number of approved examiners during March 1990, DoTC have said:-

"...these benefits (of devolved examinations) will only fully accrue when potential Amateurs have reasonable access to an examinations centre providing the full range of examination opportunities. This is not yet the case.

...presently there are places where candidates appear to be poorly served, both in the availability of examination centres and with some examination centres not offering the full range of examinations. Candidates wishing to be examined in Morse Code appear to be particularly disadvantaged."

Have you, or your local radio club, considered the service to amateur radio you could be performing if you conducted amateur examinations locally? Are you aware of potential amateur examination candidates who are severely disadvantaged because there is no examination facility reasonably available to them?

Please contact your local Division of the WIA to find out what you can do to help more potential amateurs join our ranks!

Amateur Call Book

Supplies of the 1990 Australian Radio Amateur Call Book are almost completely sold out from the Executive Office. Although most WIA Divisions still have some available, you should move quickly if you want a copy of this invaluable reference book.

The next edition of the Australian Call Book is not due to be published until September of this year. Now is perhaps an appropriate time for members to check that the information in the Call Book is accurate, and to notify the Executive Office of any changes to be made in the 1991 Call Book.

WIA Logbooks

The WIA recently made arrangements for the production of a new supply of professional quality logbooks for members. These are now available in an attractive A4 format with spiral plastic binding so that the book will open out and lie flat on the bench.

Vertical or horizontal column layout is optional, with the traditional column headings. These logbooks are available from Divisional Offices at a cost of $5.00 each, plus post and packing where applicable.

Comments coming into the WIA indicate that a number of members are now starting to keep a logbook again, after not bothering for a while when the compulsory logkeeping regulation was axed some time ago.

For all those members who find a logbook and record keeping an important part of operating an amateur station, these new WIA logbooks will become a welcome addition to the shack.

Joint WIA/DoTC Meeting

Several agenda items discussed at the WIA/DoTC Joint Meeting held on 16th February were reported on last month. Other matters which were discussed at the meeting included Third Party Traffic, Examination Devolvement, Reciprocal Licensing, Intruder Watch, CB pirates, Digitised Voice Bulletin Boards, 576 MHz ATV Repeaters, and Callsign Allocations.

These Joint Meetings have been a feature of the WIA's relationship with DoTC for many years. Traditionally they have been held on a quarterly basis, but with the dates set by mutual agreement. It is at these meetings that policy is discussed, and agreements formalised. Items may remain on the agenda for several meetings as negotiation continues and each or either body prepares position papers. In some cases

MAGPUBS

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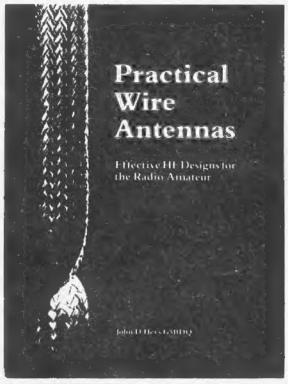
Pratical Wire Antennas
Effective HF Designs for the Radio Amateur

Pratical Wire Antennas is a new book from the RSGB by John D Heys, G3BDQ published in 1989. This book has been written for the non-mathematician whose knoledge of this subject has never extended beyond the high school syllabus. It is aimed towards anyone who is capable of passing the Radio Amateurs examination, and the range of antennas described and illustrated are easy to set up and use successfully. There is additional data which will allow experiments and tests with versions that are cut for other bands or designed to fit into difficult locations. The simplified and, it is hoped, easily understood antenna theory is an attempt to allow the newest recuit to amateur radio to learn something about how simple wire radiators work at HF.

7" x 10" **Stock # WIA296 $28.00**



8th Computer Networking Conference 1989
Colorado Springs, Colorodo Oct 7 1989
222 Pages 8" x 11" **Stock # WIA295 $24.00**

SPACE ALMANAC

A galaxy of information! The new **Space Almanac** written by Anthony R. Curtis, K3RXK, editor of Space Today, is an extraordinary book that captures the breathtaking recent news from space, freshly compiled and written. It includes approximately 40 pages on Amateur Radio satellites. The **Space Almanac** is a major handbook featuring most anything you might want to know about Man's trip to the stars. Here's what you get:

- 500,000 words
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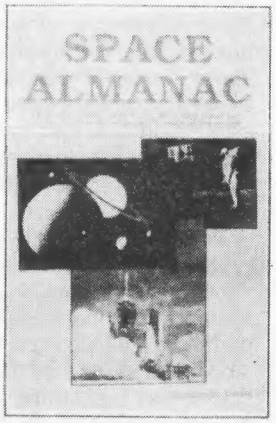

The above books, plus many more, are available from your WIA Divisional Bookshop. All items are less 10% discount for WIA Members and are plus postage and handling where applicable.

If not in stock at your Divisional Bookshop, your order will be taken and filled promptly. Not all publications are available from all Divisions.

it is necessary for the WIA to canvass members about proposed agreements, or for DoTC to research opinions of other departments.

Microwave Users

The WIA's WARC 92 team of David Wardlaw, Ron Henderson and Peter Gamble is seeking information on the use of the microwave bands by Australian amateurs. By microwaves we mean the amateur bands from 1296 MHz upwards.

In order to state the WIA case on behalf of Australian radio amateurs with the authorities, the team needs information on the occupation of the microwave bands. They are aware of the beacons from the beacon listing and presume they are operational most of the time.

John Martin, VK3ZJC, the Chairman of FTAC has been collecting this band use information and would appreciate your assistance. Send your list of microwave users to Chairman FTAC, PO Box 300, South Caulfield Vic., 3162.

Are Amateurs Elephants?

A recent letter from a member commented that his local radio club has only about 50 % of members who are also WIA members. He further commented that "the non-members are mostly people with elephantine memories who can't forget some personal clashes with Divisional or Executive office-bearers in the dim past". It made us wonder to what extent this situation applies throughout Australia.

The WIA, like any similar organisation, must accept that, if the administrators blunder or treat the members poorly, the members have a right to consider renouncing their membership if they feel strongly about it. But, in the WIA, as in many other organisations where the main work load and decision making are carried by a very few people who are mostly volunteers, opinions, attitudes and policies change from time to time as the management changes.

Perhaps those with long memories of offence given could be persuaded to note the changes and growth that has occurred in the WIA in recent years. Those who originally gave offence, whether intentionally or not, have probably now retired from office, and the disliked policies may have been reversed.

Alternatively, those who feel they have valid criticism are welcome to voice their opinions to the management, or even come and help the management consider their ideas.

It seems to us to be invalid to criticise the current administration for the perceived mistakes of their predecessors.

Amateur Licence Statistics

Figures to the end of 1989 show a total of 18372 radio amateur licences issued in Australia by DoTC (which total includes multiple licences, clubs, and licences held by the WIA). WIA membership at the same date was 7619, of whom 7278 were licensed.

A set of statistics, recently received from the IARU, listing numbers of operators and society membership for countries by region, makes for some interesting comparisons.

Indonesia, with 60,000 radio amateurs, has 72,000 society members of whom 60,000 are licensed. Apparently society membership is compulsory in that country.

Netherlands, with 15,321 operators, has 11,100 society members, of whom 8,300 are licensed.

Corresponding figures for several other countries are:-

France: 14,134, 9,527 and 7,685.
Italy: 28,000, 17,109 and 11,900.
USSR: 64,002, 142,978 and 11,761.
UK: 54,000, 36,971 and 30,115.

While the figures alone cannot prove much, as they reflect licensing policy and availability of moderately priced equipment as much as dedication to the society cause, they do suggest that in some countries the non-licensed members play a very significant part in the organisation. Perhaps this is an area where the WIA has not given as much attention to recruiting as it might have done.

The SWLs and electronics enthusiasts have much to offer to our hobby. At times they have carried a large part of the workload but, apart from access to classes and Amateur Radio magazine, they perhaps have gained little else from their membership. It was even pointed out to the WIA recently by a correspondent that Amateur Radio magazine has little to offer the unlicensed member or the potential Novice.

We need to be aware of the importance to the WIA of these members, and provide services for them.

Service Area Maps

A recent news release from DoTC announced the publication of "Commercial Television and Radio Service Area Maps". This book contains maps and descriptions of the service areas of Australian commercial television and radio stations.

The service area is the geographic area containing the communities which the station is licensed to serve. The book is available from Commonwealth Government Bookshops and by mail and telephone order for $34.95.

Late Member Payments

Judging from queries received, some WIA members have missed previous explanations as to why, when they renew their membership more than three months after the due date, they do not receive some copies of Amateur Radio magazine.

This situation occurs because, when a member pays his renewal fee more than three months after the due date, the member then goes onto a new subscription cycle beginning in the month in which the late payment is received. As a result, the following year's membership subscription for that member will become due in that new month in the following year.

Current policy is for members to receive only one magazine after failing to renew, and unfinancial members are removed from the mailing lists each month.

Despatch of Amateur Radio begins again in the month of renewal. Copies of the missed Amateur Radio magazines may be available from the Executive Office at a cost of $4.00 posted. However, the WIA cannot guarantee that back copies will always be on hand to be sent. Incidentally, just in case your membership renewal notice goes astray in the post, you can check the month when your membership is due for renewal by looking at the top left corner of your Amateur Radio address label.

QSL Bureau Survey

Stephen Pall, VK2PS, has completed and presented to the Executive a comprehensive document reviewing the current operations of the various WIA QSL Bureaux. This report will be discussed in detail at the 1990 Federal Convention, and a summary of findings will be published in Amateur Radio magazine afterwards.

For the present, sincere thanks are due to Stephen for completion of a mammoth task, and thanks to the Divisions who co-operated by providing him with the information. **ar**

Support the WIA in order to protect Amateur Radio frequencies at WARC 92

TECHNICAL CORRESPONDENCE

Temperature Coefficient Correction in Zener Diodes

In the March 1990 issue of Amateur Radio, Allan Johansen VK4KAJ told us how the positive temperature coefficient of a zener diode can be compensated by the negative temperature coefficient of a series silicon diode. We can add a little more concerning this subject.

The zener effect, which we are told is a quantum mechanical effect in which electron pairs are generated directly from the energy of electric fields (if you can understand all that), is only responsible for breakdown in diodes designed to have a breakdown voltage less than about 5 volts. Such a mechanism produces a negative temperature coefficient.

The general name given to a zener diode is somewhat of a misnomer because for diodes with breakdown voltage greater than 7 volts, the breakdown is caused by the avalanche effect. This produces a positive temperature coefficient.

For diodes between 5 and 7 volts, both mechanisms occur and hence the temperature coefficients tend to cancel and such diodes have a very low temperature coefficient.

To obtain a low temperature coefficient for higher regulated voltages, a number of zener diodes can be connected in series, either a combination of several diodes each around 5 to 7 volts, or one or a number below 5 volts with one or a number above 7 volts.

The idea submitted by Allan, using the series silicon diode, would of course only be feasible for zener diodes above 7 volts.

REFERENCE:

"Miniwatt" Zener diodes and their application. - Miniwatt Digest July 1966.

LLOYD BUTLER VK5BR
18 OTTAWA AVENUE, PANORAMA 5041

A Call to all Holders of a Novice Licence

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WIA
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Parramatta NSW 2124
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SUPERHET-DC RECEIVER FOR 3.5 TO 4.0 MHZ

DREW DIAMOND VK3XU
"NAR MEIAN" GATTERS RD, WONGA PARK 3115

Experimental amateurs will be aware of the relative advantages and disadvantages of direct conversion (DC) and superheterodyne receivers. The popularity of DC being due to the relatively good performance obtainable with fairly simple circuitry, and the absolute absence of spurious responses (apart from the "audio image"). This latter is really the only disadvantage with DC, in that true single-signal reception cannot easily be achieved. Direct conversion receivers with this capability have been made and details published, but they are so complex as to negate the whole idea of DC receivers; that of simple design consistent with acceptable performance.

The superhet provides single-signal reception, but alignment of the IF amplifier can be tricky, and instability can be a problem if high IF gain is attempted. Care must be exercised in choice of oscillator and IF frequencies to avoid spurious signal responses.

With the appearance of crystal ladder filters, along with an abundance of practical design data in recent years, plus experiences gained in both superhet and DC designs, it has become practicable to make a receiver (similar to the "super-gainer") which combines some of the best features of both schemes whilst retaining relative circuit simplicity.

The main idea behind this implementation is that the incoming signal is converted to an IF, filtered for selectivity, detected, then passed on to a high-gain audio amplifier which provides the bulk of the receiver gain, there being little or no gain at IF.

With the availability of low-cost TV/clock crystals for our ladder filter, and low-noise op amps for the AF amplifier, the parts may be readily obtained for a receiver of more than adequate performance.

Performance

This receiver was empirically designed using the "bread-board" technique by employing circuit ideas from many sources. The prototype has the following characteristics:

Frequency Range:	3.5 to 4.0 MHz.
Reception Modes:	SSB, CW, RTTY, DSB and AM (as SSB).
Sensitivity:	0.5 µV for 10 dB S + N : N.
IF Rejection:	60 dB.
Image Rejection:	72 dB.
IF Filter Pass-band:	Nominally 1.8 kHz.
Supply Voltage:	9 to 14V @ about 300 mA.

Signal handling characteristics are very good, and the receiver is pleasant to operate. No strong-signal intermodulation effects have been observed at this location, even with a full-sized dipole connected.

Circuit Description

In essence we have a DC receiver tuned to about 4.433 MHz, with a crystal filter at its input. Frequencies in the range 3.5 to 4.0 MHz are converted to this frequency by the action of the balanced mixer and local oscillator adjustable from about 7.930 to 8.450 MHz (signal + IF). In order to keep things uncomplicated, frills such as AGC and S meter have been omitted.

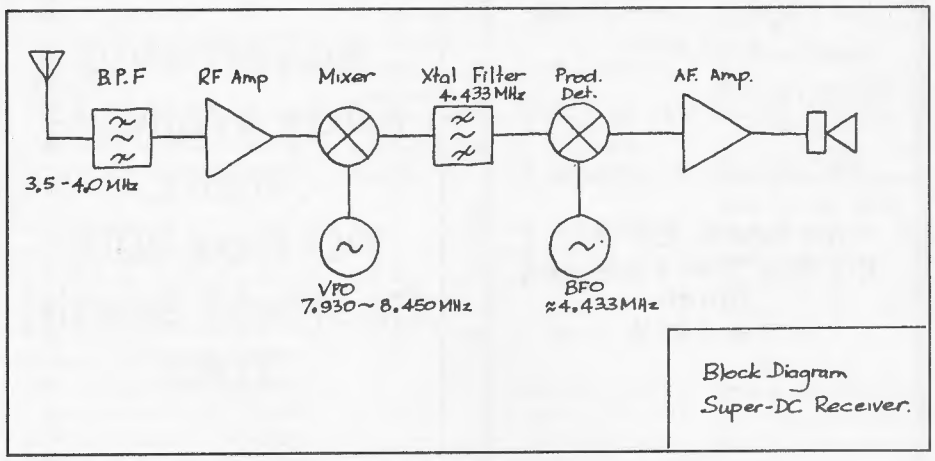
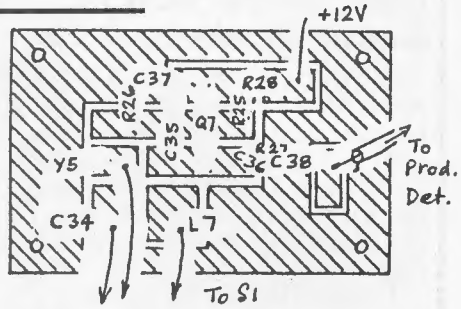
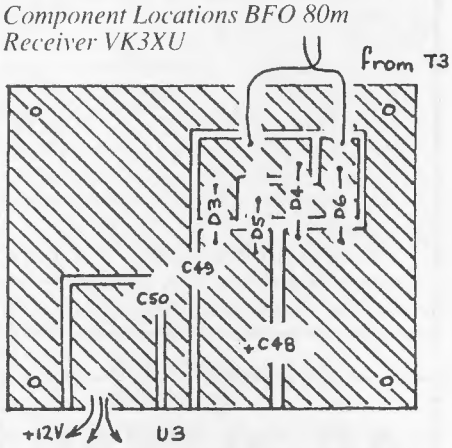


Figure 1



Component Locations BFO 80m Receiver VK3XU

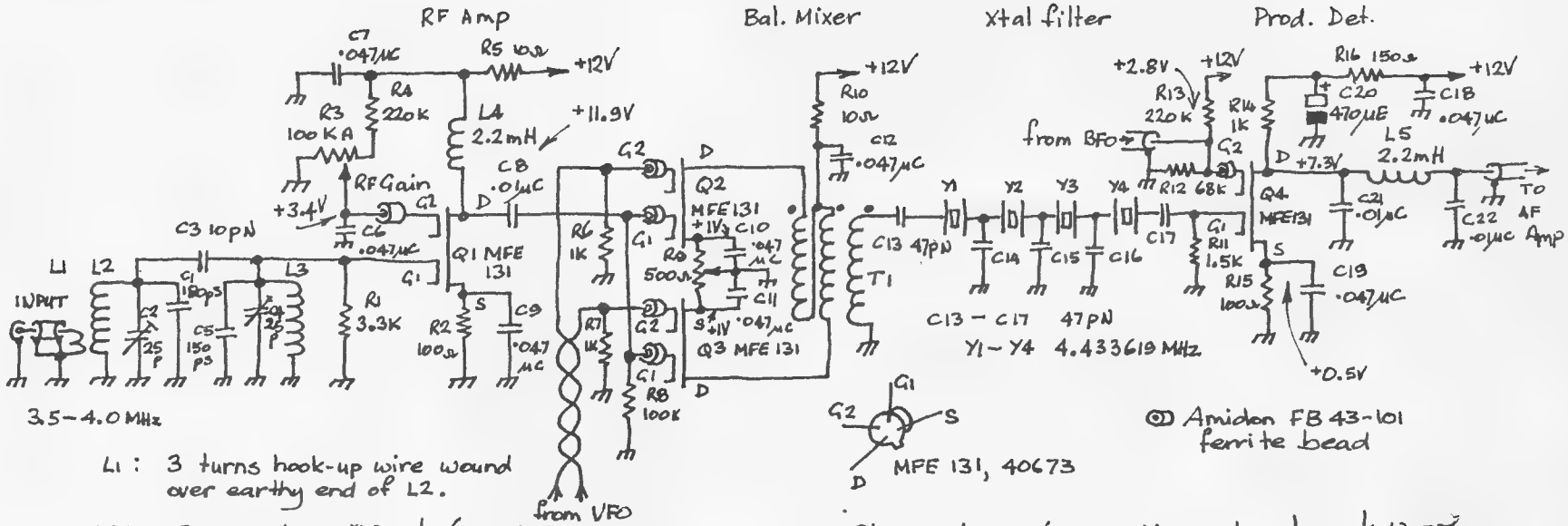


Component Locations Power Supply 3.5-4.0 MHz Receiver

The input band-pass filter offers little attenuation to signals in the 3.5 to 4.0 MHz range. Signals at broadcast, IF (4.433 MHz) and image (about 12 MHz) are rejected so only the band of interest is delivered to the input of the RF amplifier. Q1, an MFE131 or 40673 dual-gate FET provides about 15 dB gain and improves the sensitivity without substantially compromising the large signal handling capability. The potentiometer adjustable voltage on gate 2 of this FET permits the operator to vary the RF gain from about 0 to 15 dB which allows the receiver to handle all signal strengths likely to be experienced.

A Hartley oscillator maintained by Q5 supplies the VFO signal nominally from 7.930 to 8.450 MHz. Amplifier Q6 buffers the VFO and delivers a push-pull signal to the mixer.

A balanced mixer is necessary in order



L1 : 3 turns hook-up wire wound over earthy end of L2.

L2 : 9.7µH - 41 turns # 24 B&S (0.5mm) enam. on Amidon T68-2 core

L3 : 9.4µH - 39 turns # 24 B&S on Amidon T68-2 core.

L4, L5 : 2.2 or 2.5mH RFC.

T1 : ≈ 11 loops trifilar # 24 B&S enam on Amidon FT50-43 core

pS = Styroseal > 100V

µC = Ceramic > 25V

pN = NPO ceramic > 25V

µE = Electrolytic > 16V

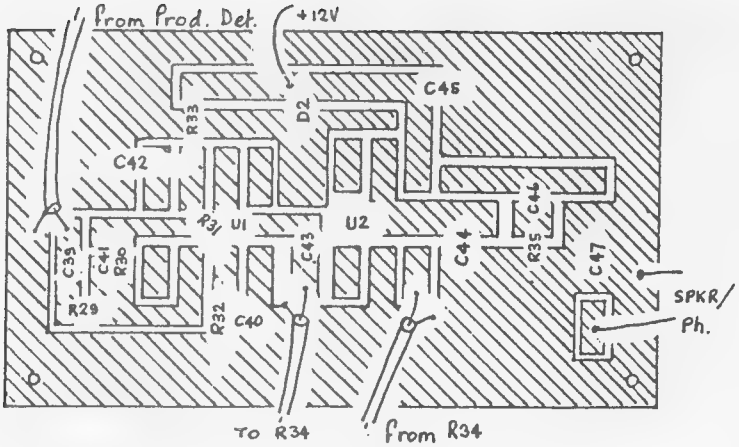
All resistors 1/8 or 1/4 W 5%

RF Amp, Balanced Mixer, Crystal Filter, Product Detector (RF Board)

Super-DC Receiver

Drawn DCD Nov 89.

fig 2



Component Locations AF Amplifier 80m Receiver VK3XU

to prevent any signals at IF (4.433 MHz) from reaching the output of the mixer and masquerading as a real signal. By applying input signals to gate 1 of Q2 and Q3 in parallel, and extracting the IF from the drains in push-pull, any IF energy at this input is "phased out". A doubly balanced mixer would of course have been the ideal choice here, but in this instance the increased complexity was not justified.

The crystal ladder filter is based upon ideas published recently in QST, AR and Rad Comm (see bibliography). TV colour burst crystals at 4.433 MHz (4.433619 actually) were chosen for their availability and suitability of frequency. The coupling capacitors shown for C13 through C17; 47 pF, yield a 6 dB band-pass of about 1.8 kHz, which probably represents a fair compromise for CW and SSB reception. For CW only work, these could be 68 or 100 pF (increasing C of the coupling capacitors decreases the bandwidth). Different makes of crystals will probably require different values of coupling capacitors. M-Tron crystals were also tried, and these required 27 pF coupling capacitors for 1.8 kHz bandwidth.

The Colpitts crystal oscillator maintained by Q7 supplies BFO frequency, nominally at 4.433 MHz. The oscillating frequency of the crystal is "pulled" from one end of the filter band-pass to the other to allow USB or LSB reception. A nice refinement here would be a capacitor variable from about 10 to 100 pF in series with the earthy end of the crystal so that the BFO frequency could be placed at any desired point from one end of the filter band-pass to the other, and so improve the QRM handling capacity of the receiver. As variable capacitors are now fairly scarce, the values of C and L shown will allow switched USB and LSB reception.

The product detector at Q4 has the IF signal applied to gate 1, and BFO frequency to gate 2. The wanted product of these; audio, is developed at the drain. Significant RF voltages will exist at this point, and these are removed by RF filter C21, L5, C22, allowing audio frequencies only to pass through to the AF amplifier.

An LF356 at U1 is set to provide about 40 dB of AF gain, and this is followed by an LM386 with about 30 dB gain to adequately power speaker or headphones. To prevent instability, liberal decoupling is used throughout the set.

Construction

As previously mentioned, this receiver was first bread-boarded using the usual "ugly" method upon scraps of circuit board material, and these were thumb tacked onto my experimental "chassis" — a piece of oregon timber wrapped with aluminium foil. Except for VFO wobblies due to long leaded components, the final lash-up worked well. It can therefore be fairly safely assumed that just about any well known construction method will work, provided that signal carrying connections and by-pass leads are kept as short as practicable, and the general layout is followed.

The components for the final prototype are accommodated upon five home made double-sided circuit boards, one for the RF amp/mixer/crystal filter/product de-

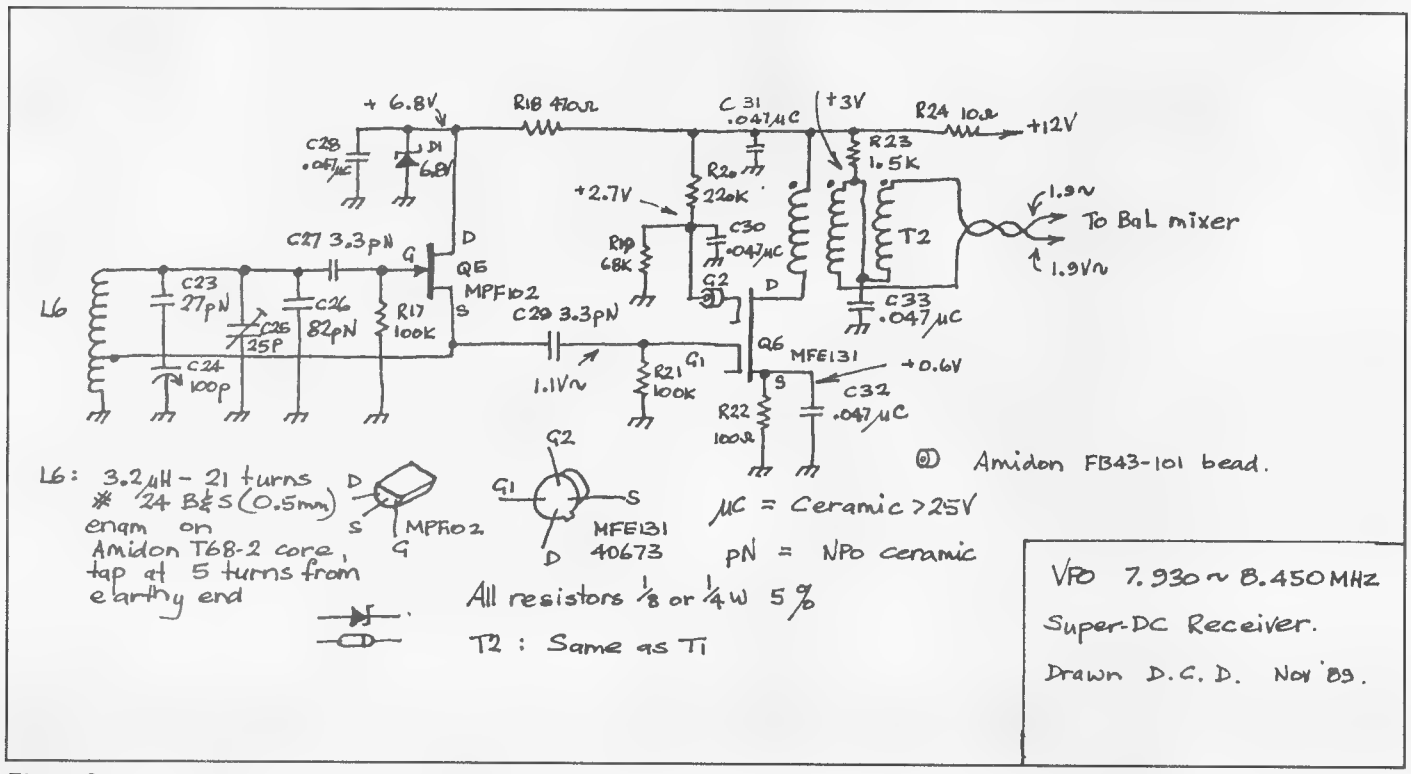


Figure 3

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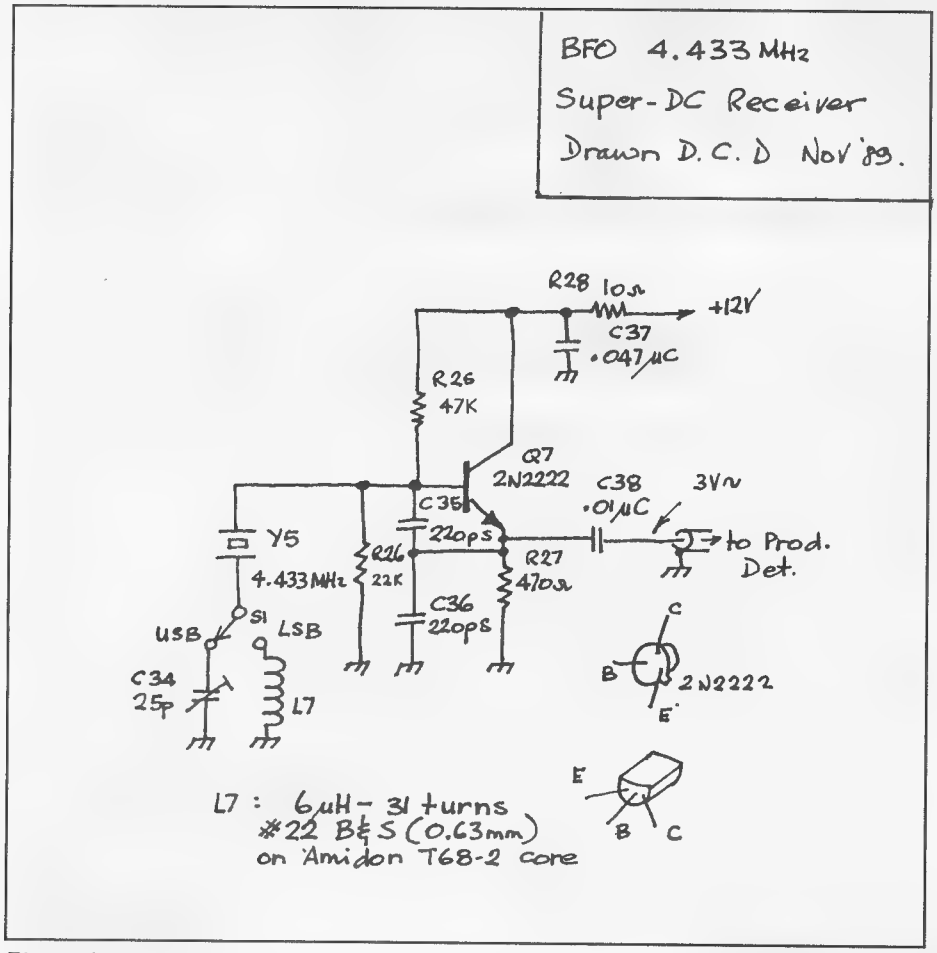
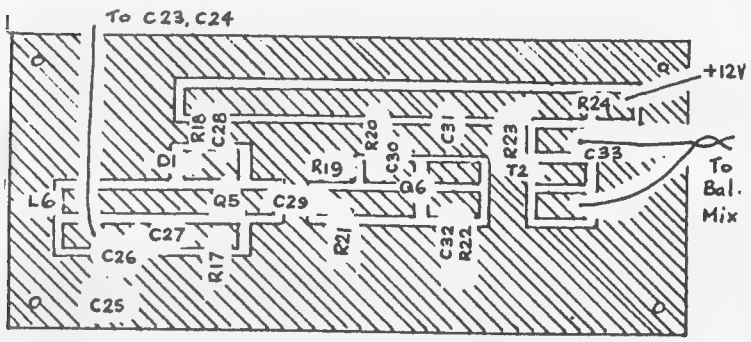


Figure 4

tector, one for the VFO/buffer, one for the BFO, one for the AF amp, and another for the power supply circuit. The un-etched reverse side of each board provides a ground plane to aid circuit stability. Apart from a mounting hole at each corner, no drilling is necessary. The components are mounted "VHF fashion" directly onto the etched copper side of the boards as shown. As the artwork for the audio ICs would have been very fiddly, this problem has been dodged by using wire wrap sockets for these chips. By spreading the socket leads out, then cutting them to length, it is easy to mount these devices onto the board with plenty of elbow room to work. Note that one resistor; R31 is under U1.

It is suggested that the boards may be made and tested in the following sequence; power supply (if required), AF, BFO, VFO, RF board. It would be prudent, if you have a FET checker, to go through your five MFE131s and select two for the balanced mixer which match as closely as possible. Check the transconductance with the two gates tied together.

Broadband transformers T1 and T2 could be a bit difficult if these have not been tackled before. Proceed as follows; Take three 300 mm lengths of #24 B&S (0.5mm) enamelled wire, lay them parallel to one another then twist together at one end. Clamp that end in a vice. Draw a cloth through the group to remove any wrinkles, then twist the free ends together and fix these in the chuck of a hand drill. Whilst keeping the wires taut, turn the drill until you have about three twists per cm. A smooth twist is required, with no transpositions or bumps. Tug the drill to set the twists, then remove the group. Carefully wind the triplet onto an Amidon FT50-43 toroidal core (about 11 loops should fit nicely). Leave about 2cm lead length. Remove about 1cm of enamel from each wire. With your multimeter set to ohms X1; locate the start and end of one "winding". Push these to one side out of the way. These will form the "secondary" of T1, and "primary" of T2 respectively (starts are shown schematically with a dot). Now, for each transformer, locate the other two windings. Connect the end of one to the start of the other to form the centre tap.



Component Locations VFO 80m Receiver VK3XU

The set should be accommodated in a metal case. It would be a good plan to allow room for expansion, and it is suggested that a form of construction similar to that used for the prototype is adopted; a pan type chassis with front and back panels, the main receiver components on the top side, leaving room for any future converters underneath. The case measures 250 mmL x 250 mmW x 125 mmH.

The type of dial for the frequency readout must be left to individual resources and taste. To my knowledge, there are no really satisfactory ready-made dials presently available. You could use one of those verniers calibrated 0-100 available from Dick Smiths, but a graph or table will be necessary. The same company can supply the Jackson planetary reduction drive shown.

The photo shows a suggested approach; an 11cm dia aluminium disc painted flat white and attached to the boss of the drive. An arc shaped aperture is cut out in the front panel and a perspex window made to suit. Press-on letters may be applied later at (say) 50 kHz points for frequency calibration, then the window fitted into place. The dial may be illuminated by fitting 12V/100mA lamps each side of the perspex so that light is launched into the window to illuminate the scribed cursor line and calibrations.

A flexible coupler should be interposed between the drive and capacitor shaft to take up any small mis-alignment. Couplers have all but vanished from the shelves. Illustrated is one approach; a length of 0.25" rubber tube, such as fuel line is attached to the capacitor shaft and drive, where one of the pot shaft off-cuts is fitted. The tube is fixed there with fuel filter clips. It will be found that after a short time the rubber will vulcanize onto the shafts and will not easily slip.

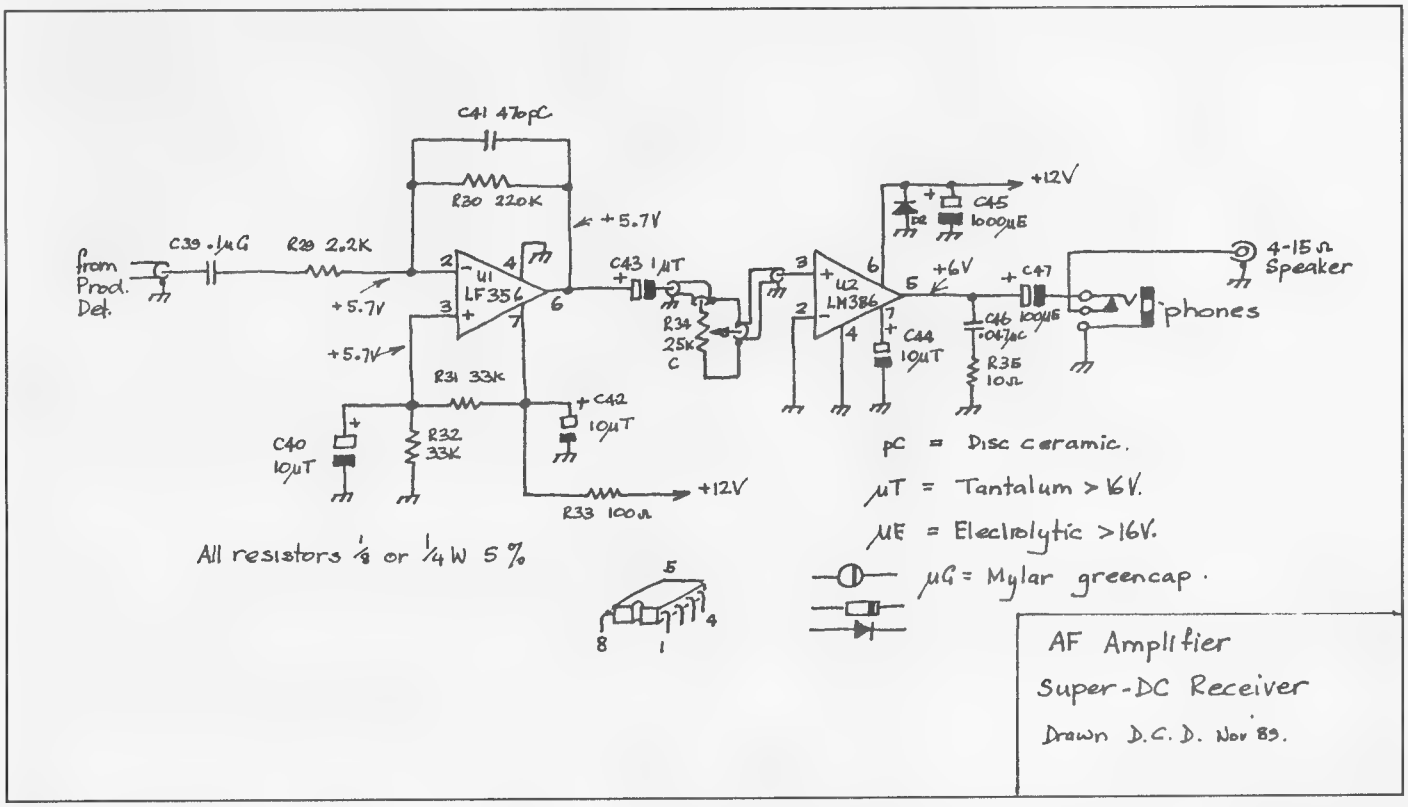


Figure 5

Alignment

The VFO frequency range should first be established. If a digital frequency meter is available; connect this to either side of the secondary of T2. Sweep the VFO through its range, checking for a little more than 500 kHz swing. With C24 at full mesh, adjust C25 so that about 7.930 MHz is generated. Now with C24 fully unmeshed, the frequency should rise to about 8.450 MHz. In the absence of a counter, another receiver which can be tuned to the VFO frequency will also serve. Set this to 7.930 MHz, and swing the VFO through its range. The VFO should radiate enough signal to be heard on the other receiver. Adjust C25 so that the VFO generates 7.930 MHz with C24 at full mesh. Check that the VFO generates about 8.450 at minimum C. The tuning range will now be established. Oscillator coil L6 should then be fixed onto the circuit board with epoxy cement spaced off with a small rectangle of perspex or similar.

If a signal generator is available; set this to 3.6 MHz at about 10 µV, and see if the signal can be tuned in. Adjust C2 for loudest signal. Now set the generator to 3.9 MHz and peak C4 for strongest signal. There will be some inter-reaction between these, and some juggling may be needed to obtain best flatness from 3.5 to 4.0 MHz. Keep the generator output level just sufficient to provide a useable signal. After this adjustment, it should be possible to detect a signal well below 0.5 microvolt across the band.

If a generator is not available; connect an antenna to the input and adjust C2 and C4 for best sensitivity consistent with best flatness. Some compromise may be necessary. Keep in mind any tuning effects that the antenna may have.

R9 sets the exact balance of the mixer. If a generator is available; sweep it carefully around 4.433 MHz at about 100 µV and see if the signal can be heard. Adjust R9 for a null. This should occur near the mid travel of this pot.

If no generator is available, set R9 to mid-travel (perhaps later you can borrow a generator and perform the above adjustment). Meantime, rejection of the IF will be entirely adequate for most locations.

The BFO crystal Y5 is pulled onto the low side of the filter pass band to provide LSB reception, and no adjustment is provided for this. It should be found that the value of inductance used (6 µH) will place the BFO frequency in just the right spot for LSB signals.

Capacitor C34 is adjusted to place the BFO frequency on the high side of the filter for USB signals. This is a subjective adjustment. You should find that the

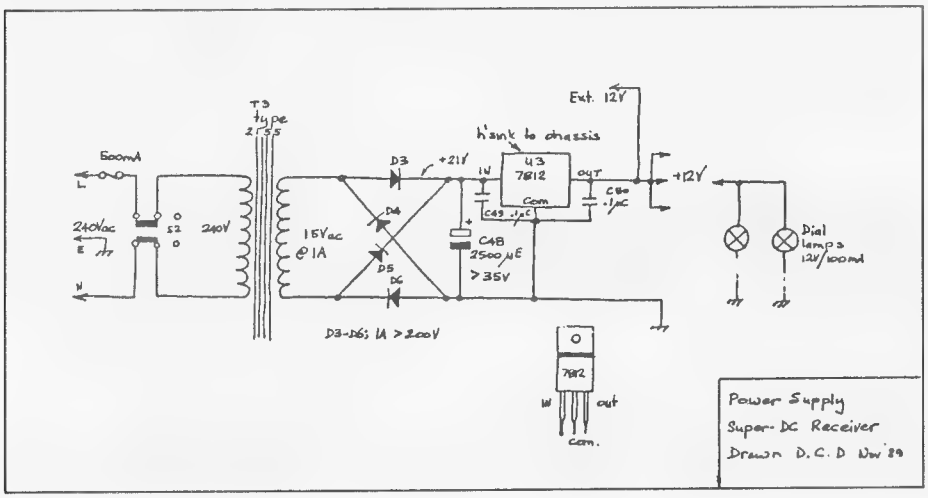
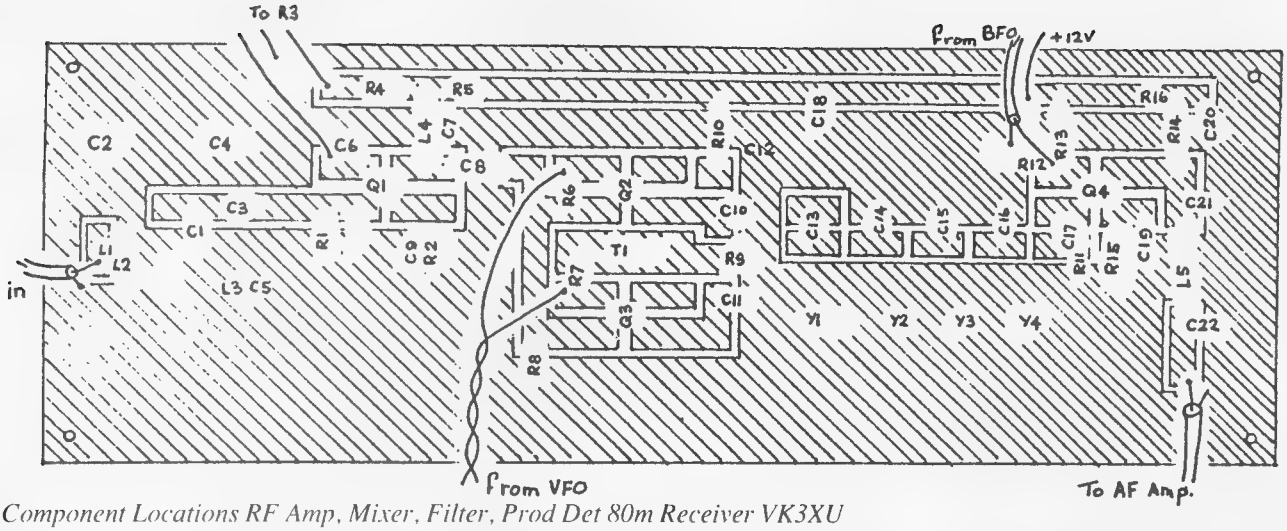


Figure 6



Component Locations RF Amp, Mixer, Filter, Prod Det 80m Receiver VK3XU

pitch of the BFO hiss shifts in character as the BFO frequency is changed in response to C34 variations. Set C34 so that as a carrier is tuned in, a strong beat is heard on one side of the signal, and a much weaker beat is heard on the other — about 10 pF worth of the 25 pF available.

Troubleshooting

There are no perceived pitfalls for the typical builder. Some key dc and rf voltages are indicated as a troubleshooting aid should this be necessary. Use a high impedance meter (eg a DMM) for these readings. The ordinary ARRL Handbook RF probe was used for the RF voltages.

The phasing and connections for the broadband transformers must be strictly observed, and past experience indicates that this is a common area of difficulty for some beginners.

During development it was found that the MFE131s would oscillate at VHF fairly easily. To tame these it was found necessary to add a "Q killer" to gate 2 of each device, and also gate 1 of the mixer devices. These beads must be fitted to the gate leads in such a manner that the bead cannot contact other leads or components, as they can cause some strange effects if allowed to flop about. Some PVC stripped from hook-up wire is placed on the lead each side of the bead.

If, after unsuccessful attempts you cannot get your set to work satisfactorily, write to me about it and I shall extend any reasonable amount of help necessary. An SASE would be appreciated.

Parts

All the parts used in this project are readily available at present, except perhaps for the 100 pF variable capacitor. Let me know if this is a problem, as I still have a few spare (at time of writing) available to enthusiasts for just the cost of postage. See advertisements in this journal for suppliers of Amidon cores. All other components should be readily available from the usual electronics suppliers. Remember to shop around for the best price on crystals, as they vary widely from place to place. When buying, make sure they are all of the same type and make.

References And Further Reading

1. DeMaw & Collins — Modern Receiver Mixers; QST Jan '81.
2. Hayward & DeMaw — Solid State Design; ARRL.
3. Hayward — Designing & Building Crystal Ladder Filters; QST July '87.
4. Gurr, VK5RG — Ladder Crystal Filters; AR Jan '84.
5. DeMaw — Practical RF Design manual: Prentice-Hall Inc.
6. Converter Circuits — any recent ARRL H'book eg 1988 edition p30.9.

Inductive Components

Amidon T68-2 toroidal core
L1/2, L3, L6, L7

Amidon FT50-43 toroidal core
T1, T2

Amidon FB43-101 ferrite bead
For Q1, Q2, Q3, Q4, Q6 (7)

2.2 or 2.5 mH R F C

Type 2155 transformer, 15V/1A T3

Miscellaneous

4.4336...MHz crystals (eg Philips 04042.945 or M-Tron MP-1), X5 vernier reduction drive, flexible coupler (see text), printed circuit material, antenna connector, speaker connector, ext 12V connector, fuse holder, 500 mA fuse, power lead, grommets, SPDT switch (S1), DPDT switch (S2), knobs, headphones connector, 12V/100 mA lamps and holders, screws, nuts, spacers, #22 and #24 enam. wire, hook-up wire, miniature coax, multipole bandswitch (if converters are planned), case to suit or material for same, perspex for dial window and VFO coil, epoxy glue, 8-pin DIL wire wrap sockets X2.

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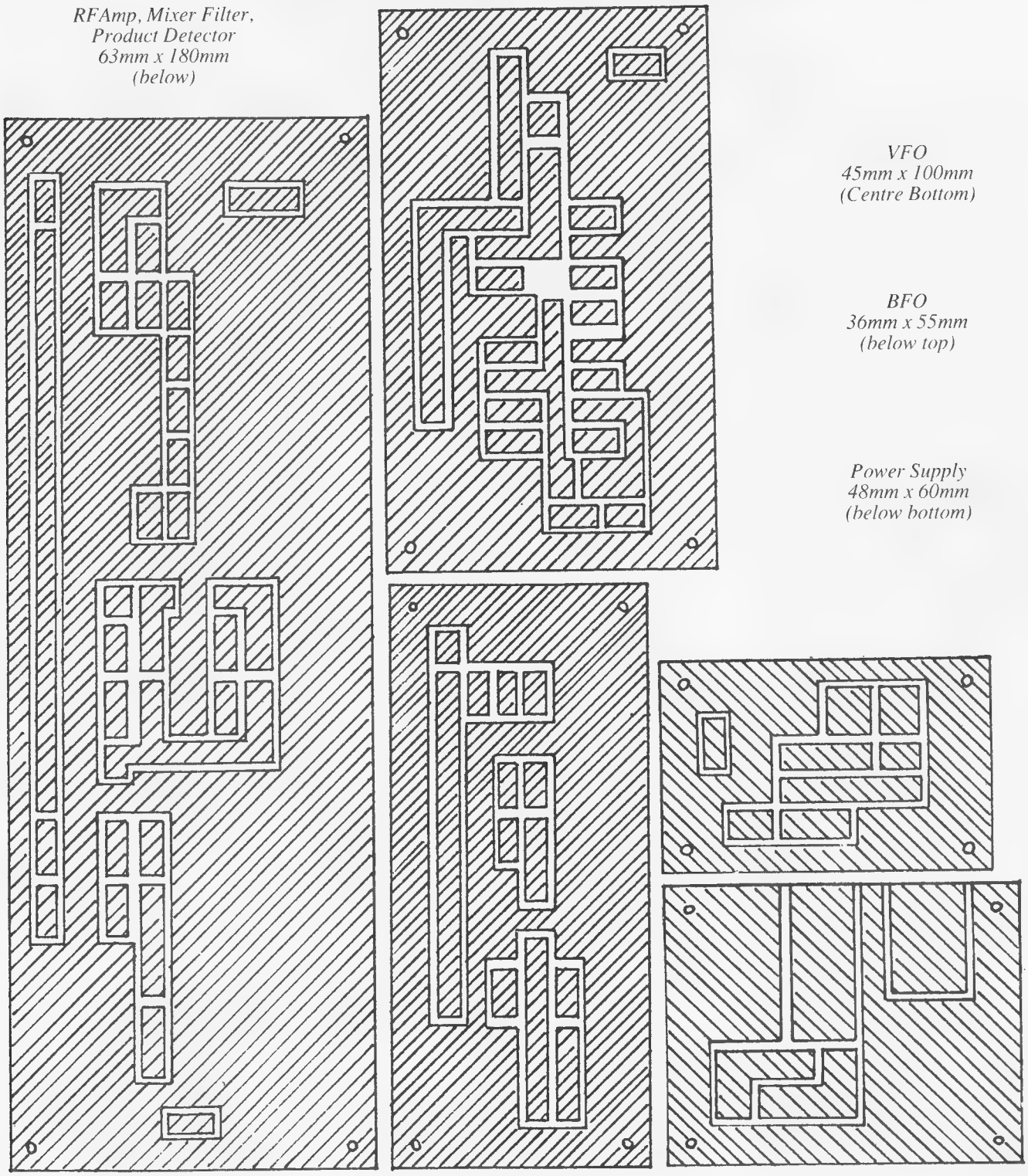


VFO
45mm x 100mm
(Centre Bottom)

BFO
36mm x 55mm
(below top)

Power Supply
48mm x 60mm
(below bottom)

Continued on Page 23

COMING UP FROM DOWN UNDER ON THE DIAMOND DILLY

DON P WOOD W7YSO/VK2DSO
SUBMITTED BY REG HARDMAN VK4XH

Eighteen months 1986-7 in Carlingford (Sydney) Australia at the bottom of the sun spot cycle VK2DSO (W7YSO) maintained communications with home.

Armed only with my old Kenwood TS-120-S transceiver, MFJ-941-D tuner, telegraph key, a 1 lb spool of # 22 bare hookup wire in my carry on flight case and my first wife by my side, I was ready to brave Australia and the ozone layer.

I told Dodie (Flora) she could remain number 1 wife as long as she continued to put up with my radio hobby. As counselled by my elders, I should set little things like this straight at the onset, and as we were just recently married (just six kids and 21 grandkids ago), I felt the matter should not be left unattended.

After scrounging a car battery for power, stuff for a charger and picking up my new VK2 licence, we were ready for project "SKYWIRE".

The endurance test and antennas came the hard way. First a full length of 1/2" galv water pipe from the BBC Hardware store just short of a 1/2 mile up the hill from our flat ... she on one end and me on the other. Next was a length of 3/4" water pipe. It came down the hill attended by considerable muttering and obvious indications of an undesirable task as we again shared the load down the hill to the flat, thus completing phase one of the acquisition of antenna support masts.

The large back yard with its 5 to 6 ft wooden fence was well suited for our project. The pipes were stood on end and secured with coat hanger wire to the wooden fence. With nylon cord as the insulator, the spool of #22 bare hookup wire was strung out in long wire fashion, about 105 ft long.

The first contact with W7AOE (my bro-in-law back home) was on 20 m and of Q2-3 level. This prompted our son Don (WA7GWD) to air freight a triband Butternut Bowtie beam to us.

As always, one thing calls for another. Most beams, you know, work best if not left lying on the ground, and seem to have an efficiency factor somewhat relative to their height above the earth.

Without a question, the 1/2/ & 3/4/" pipe would not support the beam, so with the greatest of apprehension I approached my bride. This time not with the bargain of lets do or be replaced format, but with the dream of being able to hear and talk to our families, grandkids and her mom and dad.

Like time erasing the memories of the last painful child birth, a couple of lapsed weeks and a brief and noisy contact with home, had but almost, totally, kind of, removed the distasteful memories of carting the pipes down the hill.

With the dream and high hopes of bettering our contacts with home, we once again trudged up the hill to the BBC Hardware store for more pipe.

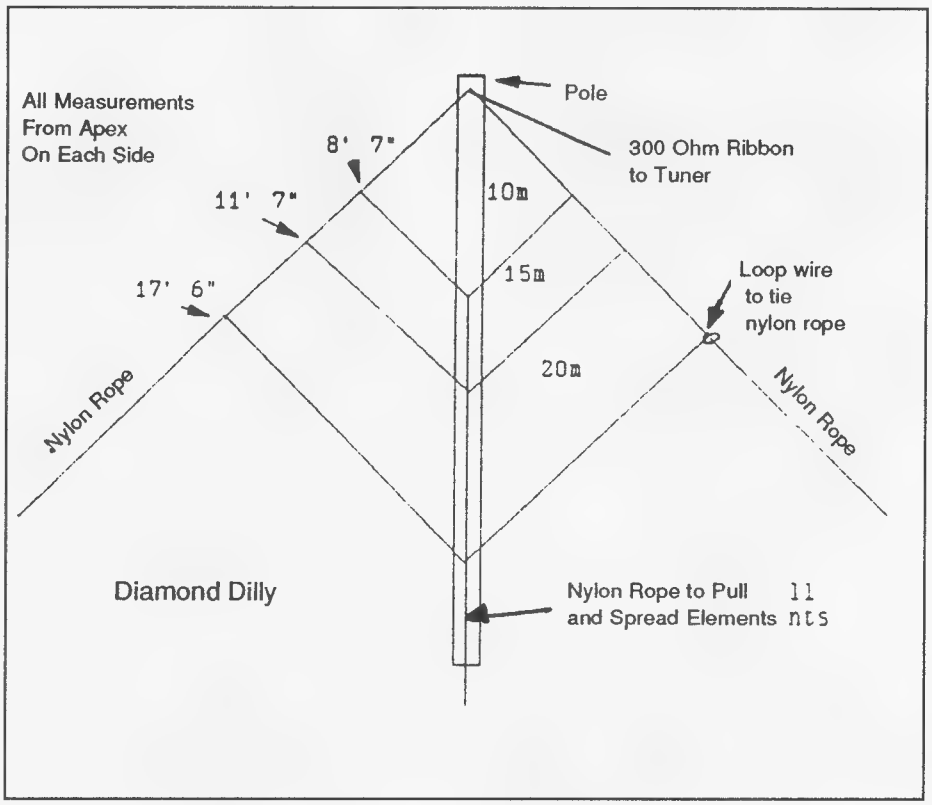
This time was the test of all times! The first pipe was a full length of 1" galvanized water pipe. The second was 1 1/4" or 1 1/2" (whatever slips over the 1 in size) pipe. MAN! WAS IT HEAVY!

By this time in our stay in Australia, it was very apparent to me that my style of living could be in jeopardy for an unknown period of time if indeed Dodie were to renounce her #1 position.

Being aware of the laundry, cooking, etc, I did my best to ease the load at her end of that big heavy pipe by moving back and forth toward the centre of the pipe as the threats and cries of anguish demanded. And, of course, extra rest stops were awarded this trip as an added incentive.

The 1/2" and 3/4" pipes were positioned to support a 40 m dipole fed with home brew ladder line and broad side to the USA. The two larger pipes were telescoped together along with a short piece of 3/4" pipe to form a mast approximately 32 ft long to support the newly acquired beam.

With a rope-pulley arrangement and a home brew winch fashioned from pipe



Diamond Dilly Antenna

and stuff, I was able to raise and lower the mast without Dodie's assistance. This was no small thing, and gained me that one look from her!

Some months later, I acquired some sections of aluminium antenna mast allowing an additional 16 ft in height. As hoped, this increase in height was most rewarding.

Operations continued for about four months; then we almost lost the lot in a freak wind storm. Reluctantly I lowered it 10 ft or so. Realizing that height above ground was a must, and was not going to be possible due to cost and other factors, my mind went back to the mental drawing board.

There had to be something easy to support, that I could build out of nothing, and that would work at lower altitudes.

CUBICAL QUAD!! I had used one for 10-12 years, with good results on a 40-ft tower. That was it! One element in a diamond configuration, fed at the top with the home brew ladder line.

Even with the added wire I had managed to scrounge, I would still fall short of having enough to make it multiband, and besides, the lower freq loops would be at the highest point on the mast where the most used 15 m loop should be. There had to be a way, and I had to find more wire. After careful study of a triband Quad driven element section, the extra wire would be found, and the 15 m loop would be at the highest point! Gee, what a guy won't do for his Dodie!

The 40 m dipole wire and ladder line were salvaged and the 1/2 and 3/4" pipes were left standing for side supports. For test purposes, I used a length of 300 ohm TV twinlead for the feed line, and the test was on!

The beam was left in place, then the 15 and 20 m loops were slung (diamond, top fed configuration) under it. Results were very gratifying. Being able to switch from beam to loop and back at will on the MFJ tuner, left no doubt as to test results. Generally, the beam and loop were about the same, with the loop holding the upperhand.

Knowing the day was forthcoming when the need to ship home or dispose of the beam would be upon us, I removed the beam and went for it. With the beam gone, I was able to extend the pipes again and add another 10 ft of "BBC" PVC pipe to the top. This provided a 55 ft support for the loop, getting it up there where more of the good stuff is.

The mast now resembled a wet noodle stood on end, but with the antenna serving as guying for the mast, it did the job. The single mast support was ideal, with the corner of the diamond loop being at the most desirable point of feed.

It was a grungy bunch of wire I had to work with and didn't make life too easy. The large diameter pieces were soldered together and used for feedline and the top sloping section of the loops in an effort to keep losses down.

With the added mast height, I was able to include 40 m and then the 80 m band in a screwy inverted V, dipole arrangement. Unable to continue straight out with the 80 m dipole legs because of space limitations, I tied them off with nylon cords to the tops of the 1/2 and 3/4" pipes secured to the wooden fence, then ran the remainder sloping down in line with and onto the wooden fence.

The common top half on each quad loop idea is fine for a single or driven element, but due to different spacing requirements for each band, full loops would still be required for the reflector and director element arrangement.

Many enjoyable contacts are logged in my Aussie log book, reflecting the worth of this all band "DIAMOND DILLY" antenna fed with open wire feedline.

Diamond Dilly Antenna Evaluation

Reg Hardman, VK4XH
16 Sunningdale Av, Rochedale 4123

I have the following additions, comments, and changes to make as a result of my recent building of the "Diamond Dilly". Let me say first that the nylon rope legs of the Diamond so indicated can/should be the inverted Vee section of the 40 metre dipole, rather than the separate dipole so indicated. It is quite possible for the unit to have a 40 metre quad element (as well as the other three) if the height of the mast is around 45 feet or more. If this is the case then the dipole section will be the 80 metres 1/2 wave component so indicated in the text.

The unit I constructed utilized only the 10-15-20 metre quad elements. The results of the tests are as follows: The three band antenna was constructed out of the green insulated earthing wire normally used in house wiring and raised to a level of approximately 35 feet. The apex was spread to an angle of approximately 90 degrees and in my case I used 450 ohm ladder line rather than the 300 ohm TV ribbon. The Diamond Dilly was purposely raised to 35 feet, the same height as my 3 element Wilson beam and positioned some 15 feet away from the same beam. I ran the ladder line to an EAT-300 tuner and then to a coaxial switch before the transceiver so that I could switch backwards and forwards from the multi band single element quad to the beam for comparison purposes.

On April 22 my first contacts were with VK5QX (Ian in Adelaide) and WL7BOR (Ed in Anchorage, Alaska) on 15 metres at 0700Z. The SWR on both antennas was almost 1:1.

Running barefoot on the transceiver, Ed could hardly tell the difference in signals (around 5 & 5) between the beam and the single element quad (he thought there was about 1 1/2 S points different), while Ian could not tell the difference at all. On "receive" in copying Ed and Ian there was very little difference; possibly one "S" point in favour of the beam, which was very surprising to me.

We then moved to 20 metres where a similar condition existed (as with 15) in comparing signal strengths with Ed in Alaska. The results were particularly gratifying to me in that the single element quad could achieve rather spectacular results for just a few dollars worth of wire materials. In the case of 20 metres I got the SWR down to about 1:2. I think perhaps the element length was a little too long.

Switching the transceiver to 18.114 MHz I was also able to load up on this frequency via the tuner and worked ZL2APW, Ron in New Zealand and W2NTU Ed in Cotton Valley, Louisiana, USA with good results and a flat SWR.

Although not made up for 40 metres I was also able to load up on the tuner with about a 1:2 SWR and worked VK1KM Kevin and VK2FLG Ron. Although the results were not spectacular I was able to break in with about 40 watts of power and carry on an effective QSO.

The next morning I worked Don, W7YSO, on 15 metres and 10 metres again reflecting very little difference between the single element quad and the 3 element beam. There was in this case of 15 metres a little more favour towards the beam but this was barely distinguishable on ten metres.

In addition to the above, I was able to successfully tune to the 10 MHz and 24 MHz bands and work a number of stations on these bands on 25/4/89. Therefore with the above configuration I was able to successfully operate on the 7 MHz, 10 MHz, 14 MHz, 18 MHz, 21 MHz, 24 MHz and 28 MHz bands.

In summing up, I believe this single element multi-band antenna is ideal for emergency operation, being able to provide better than dipole results for about the same amount of money. However, it can also be very effective in a permanent installation where only a low budget is permissible.

With emergency operation, throwing a rope over a tree and tieing off both legs is all that is required for multi band "gain plus" operations. **ar**

MORSE — THE PHILLIPS CODE

By Lloyd Butler VK5BR
18 Ottawa Ave Panorama 5041

In my article "Early Background of Telegraph Codes" (Amateur Radio Sept 1989), I made a brief reference to the Phillips Code. Subsequent to the publication, I have received a letter from Tony Smith G4FAI giving us further detail on this code. Apart from many other contributions Tony makes to various radio and electronics journals, he is the editor of "Morsum Magnificat", a publication devoted to the historic aspects of telegraphy and available through a small subscription via Tony.

Tony also refers to an article in "Morsum Magnificat", concerning the Phillips code and written by Kaye Weedon of Norway. Kaye Weedon is an electrical communications engineer who worked for Kodak for 43 years and who is very interested in researching early communications history.

In this article, Kaye refers to another article on telegraphy which he had published in "Volund 1985", a journal of the Norsk Teknisk Museum. Further information on the Phillips code can be gleaned from the Volund article.

I have had further letters from both Tony and Kaye and a copy, from Kaye, of the Volund article. With their kind permission, we reprint Tony's original letter, Kaye's article from "Morsum Magnificat" and a section relevant to the Phillips code from the English summary of Kaye's article in Volund 1985.

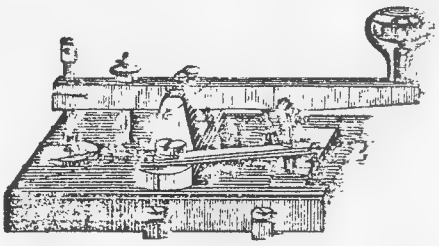
Morsum Magnificat

Tony Smith, G4FAI,
1, Tash Place,
London, N11 1PA,
England.
17.11.89.

Mr Lloyd Butler, VK5BR,
18, Ottawa Avenue,
Panorama 5041,
South Australia.
Dear Lloyd,

I was most interested in your article about early telegraph codes in "Amateur Radio", September 1989, and was pleased to see that you found information from some of my PW articles to be of use.

However, I think you may have misunderstood the nature of the Phillips code which, as you say was used for press work in the USA. This was basically a system of word or phrase abbreviations used to speed up the transmission of press copy and intended to be sent by normal (American) Morse. As you noted, the



punctuation signs are the same as the normal American code apart from a few symbols which were presumably worked out to be more efficient in transmission bearing in mind the purpose of the code.

I enclose for your information a copy of an article referring to the Phillips code which is in the winter issue of Morsum Magnificat and which gives an example of the use of the code.

I'm also enclosing details of MM. There's no obligation, of course, but if you are interested in the historical aspects of telegraphy you may find a subscription worthwhile.

Incidentally, you mention the US Navy code. You may be interested to know that that had a fore-runner, the Army General Purpose or "Wig-wag" code which was sent either by flag or by conventional Morse instruments.

Yours sincerely,
Tony Smith

Phillips Code Reborn

Sooner or later the venerable Phillips code had to be revived. The following appeared in a "New Products" notice in "Newsweek", May 9, 1988.

"... the Panasonic Industrial Co ... has developed a new software program for certain Panasonic electric typewriters that could increase the speed and accuracy of typists. The program, called FasType, automatically converts Gregg shorthand abbreviations ... into full typed text. If, for example, a secretary types the abbreviation "asap" on the keyboard, the system will automatically type out the words "as soon as possible" ... Panasonic claim the program increases office productivity in two ways: by reducing the number of keystrokes needed for data entry, and by eliminating some potential spelling errors.

FasType ... has a 1,400-word standard glossary that includes days of the week, months, salutations, common nouns and standard business terms. A separate "user glossary" allows operators to store abbreviation unique to their job ..."

It is interesting to quote an example (ref.1) of the abbreviations used in the Phillips code era which lasted, in the US, c1879-1919. The Phillips code was only used by commercial high-speed operators and almost entirely for press work. Speed of message handling was their bread and butter — unlike Europe where bonus pay was unknown, telegraphists were offered no incentives and, in the German Post Office, higher speed was seen as a possibility of reducing staff.

Phillips code enabled US operators to send for hours at 45-50 wpm, at times even more, but it also transferred a burden to the receiving operator.

Example: "Mems o cx Cgs rptg und cv cmns o eno cap wo krp xgn ifo thr adhts wi cmb aga ay emt to crpns, bt cujx es dtmd efo qpt peo f sq stas wi efy dmz ay osn."

Which "translates" as:

"Members of Congress representing under cover combinations of enormous capital who corrupt legislation in favour of their adherents will combine against any embarrassment to the corporations, but courageous and determined effort on the part of the people of the separate states will effectually demoralize any opposition."

In the Phillips code the computer was the human brain on the telegraph operator whose functions are described thus (refs. 2, 3, 4):

"Working Phillips involved very remarkable brain work. First, both operators had to know the Phillips code by heart. The sender would automatically encode his abbreviated message in Morse, (American Morse, ie Vail's code). The receiving operator performed the almost incredible task of hearing the sounder in a noisy room, immediately decoding the message from "Phillips" into the readable language of the original message which his pen recorded on paper. (Later written by typewriter.)

In press work, the use of the Phillips code ... materially lightened the burden of the telegraph operators, some of whom could now handle 50 to 55 wpm. for hours. Around 1907, such operators augmented their annual pay of 400-500 dollars by a bonus of 25-50 percent using their privately owned typewriters."

The burden is now taken over by the computer and its software but the "operator", now the "FasType" secretary, has to master the Gregg shorthand ab-

breviations, duplicating the Morse operator's initial learning process of 109 years ago.

Where the old-time operators stored the abbreviations in their minds but could look them up in the Phillips code book, the modern secretary has them stored in the computer program for instant reference if the human memory is not adequate.

References

1. Weedon: "Sounder, skrivemaskin, bonus, Phillips-Kode og "Vibroplex", VOLUND 1985, Norsk Teknisk Museum, p.67
2. Weedon: ibid, p.72.
3. Weedon: "Faster Manual Morse", Morsum Magnificat Nr 11 Spring 1989, p45.
4. Murray, Donald: "The Typewriter and Piecework in Telegraphy". Post Office Electrical Engineer's Journal, Vol 1, 1908, pp 18-21.

Extract On The Phillips Code

KAYE WEEDON

From Reference 1, Above.

The introduction 1879, by Walter Phillips, of the PHILLIPS CODE BOOK marked another advance in faster message handling. Essentially, this code substituted "words" of 2 to 4 letters for those of 5 or more. This gave savings of 30 to over 50 per cent of actual signals transmitted. The Phillips Code was used almost only for press matter intended for the large number of newspaper over the US continent and was not permitted for ordinary telegrams.

At one time c1907, before the general introduction of the "Vibroplex" key, two U.S. operators on one, rare, occasion netted 50 wpm over 8 hours, using reception by sounder, typewriter, and Phillips code. **ar**

ST KILDA ACCESS TELEVISION — HELP NEEDED

St Kilda Access Television (SKA TV) is a community television organisation. SKA TV is working towards the establishment of a permanent community access TV station to serve the innter south eastern suburbs of Melbourne.

SKA TV was incorporated in October 1988. Since that date SKA TV has run two test transmissions in the St Kilda area using 10 and 20 watt transmitters.

Membership of SKA TV is open to all stands at 350, as of April 1990.

SKA TV would welcome the participation of radio and TV amateurs in our activities. Within the next 12 months SKA TV must determine the site, transmitter and antenna required to service the inner south east of Melbourne.

As is typical of community volunteer organisations, money is lacking. The purchase of new transmitting equipment is not currently an option for us. Anyone who knows of the availability of second hand transmitting equipment, or the designs for such equipment could assist us greatly. Our most pressing requirement is a UHF linear amplifier of 100 watts or more capacity.

Anyone wishing to join SKA TV or assist in any way should contact Steven Armstrong, Technical Co-ordinator, on BH: (03) 525 3551 or AH: (03) 529 8468. **ar**

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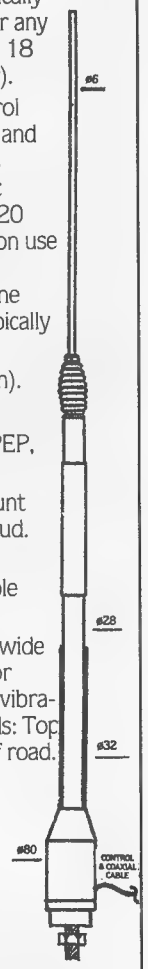

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A MORSE OSCILLATOR

By Mervyn Eunson VK4SO
Box 1513 GPO Brisbane 4001

Restoring Traeger "pedal wireless" morse sets to working condition brought surprises. For one, there was no sidetone facility to monitor transmissions!

Determined types, these pioneer bush folk — some scored brief tuition in the art of sending morse and a pat on the back. Then they were ready for outside contact in any emergency, with at best a watt or so of CW to span hundreds of miles to Base. They could monitor their transmissions, recounts Rev Fred McKay (one of the early "patrol padres"), by the blinking of the tuning indicator (a torch globe in series with the aerial output coil).

Not this op though, audio sidetone was needed to demonstrate the old sets. The oscillator evolved for the purpose also functions well with the Traeger Morse Typewriter in public displays of early Flying Doctor relics. Here all are invited to try their hand at morse, either through the keyboard or on a straight hand key, to be copied by the duty radio officer (an amateur volunteer).

The circuit is simple and effective. A NE555 IC timer chip as an astable multivibrator generates audio tone and is keyed in the supply line. Its output alone is sufficient for close listening. For a higher level of audio, a LM386 amplifier will add ample gain.

The illustrations may mislead with a false impression of complexity. Actually, a number of options, some pure gimmicks, were added for versatility, and the device, like Topsy, just grew.

For use by different volunteer operators in various surroundings, often crowded and noisy, the expanded version has both adjustable pitch and gain, multiple switched inputs, a relay to trigger transmitters if needed, and flashing LED indicators to impress small boys and confuse know-alls.

The circuit diagram shows the basic essentials, and a little explanation may be warranted. Frequency of operation is determined by the R-C divider at the NE555 timer input. Most operators prefer a tone around 800 Hz, best achieved by making Rx a fixed value 3.9k resistor and omitting Rv. If semi-fixed adjustment over a wide range is preferred, substitute a 3.3k resistor in series with Rv a 1k trimpot, and select your own note.

Variable pitch control with a pot on the front panel, as depicted, is largely a gimmick, but with justification. Apart from preferences of different duty operators, slow morse from the Morse Typewriter (loaded down to about 10 wpm) sounds best at low pitch. A higher pitch is more suitable for faster morse from the hand key. For personal use the complication is superfluous.

As a trainer to practise the code, merely construct the oscillator section with the NE555 (in a socket) and its resistors and capacitors. A PCB is not warranted, for the few components mount conveniently on a scrap of plated stripboard (Veroboard or similar). The output from pin 3 is fed to a miniature speaker, behind which will fit the whole works, including a 9V battery. A switch is not necessary as there is no drain unless the key is operated.

For higher output level than the oscillator alone provides, a LM386 chip may be added as a non-critical amplifier. This will effect a gain of 20, normally quite ample with the relatively high input. A gain control is not necessary.

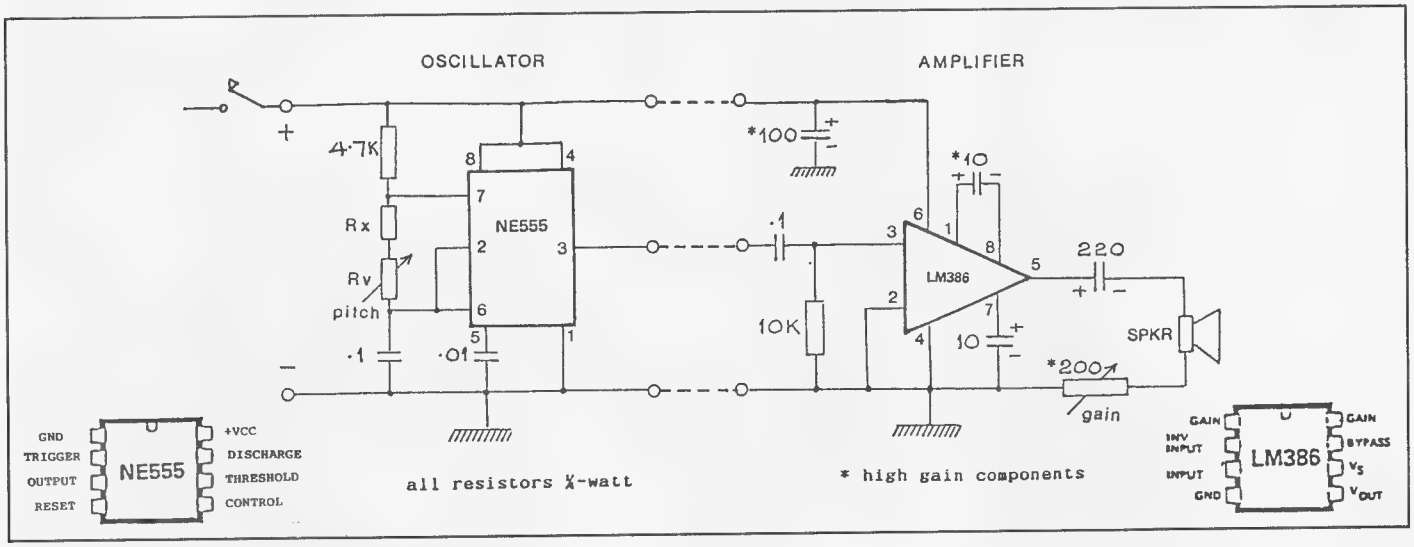
Where considered necessary, gain of the amplifier may be increased to 200 by adding a 10 µF capacitor across pins 1 and 8 (marked with an asterisk). In this case it is advisable to decouple the supply line with a 100 µF capacitor. The piercing tone now will be excessive for close listening, necessitating a cut-throat gain control. Here this simply became a surplus 200-ohm pot (as a variable load) in series with the speaker — a cheaper carbon 500-ohm item will be equally effective.

Supply voltage is not critical, any range between 6V to 12V will do, for both active devices will function, without alteration of tone, down to about 4V or so. A small 9V battery will do fine here, particularly if the non-essential LEDS are omitted to limit drain.

The version depicted is not so restricted, being supplied by a hefty 12V power pack or else a car battery in situations without mains.

If it is required to trigger a transmitter, a small relay and line socket are added. These need not be elaborate, a single set of low-rated contacts will suffice.

And there it is, a budding homebrewer's ideal. Completely uncritical in all ways, requiring a most determined effort to produce a dud. It may be as stark and basic as wished. With a full display of ingenuity it can become versatile and complicated. **ar**



A Morse Oscillator Circuit Diagram

Radio Amateurs: Have you checked out EA lately?

No doubt most radio amateurs are aware that *Electronics Australia* is by far this country's largest-selling electronics magazine, as well as being its oldest (we began way back in 1922, as *Wireless Weekly*). But have you looked inside the magazine lately?

Remember Jim Rowe, VK2ZLO? Jim used to be Technical Editor, and then Editor – back in the late 1960's and 1970's. You may recall some of the amateur radio and test equipment projects he developed, which proved to be extremely popular. Well, Jim is back at the helm of the magazine, and has been busy giving it a new lease of life.

You'll now find lots of new 'departments' in the magazine, including Solid State Update (with news of new semiconductor devices), Silicon Valley Update (news from the USA) and What's New in Entertainment Electronics. Plus all of your old favourites like Forum, The Serviceman, Circuit and Design Ideas and so on. And of course plenty of 'meaty' technical articles and contruction projects.

INCLUDED IN OUR MAY ISSUE:

AMATEUR RADIO TO THE 'RESCUE'

WICEN/SES emergency training exercises aren't all hard slogging and deadly serious, as Tom Moffat VK7TM relates. On occasions, they can be quite enjoyable – even good fun!

THE RISE & FALL OF THERMIONIC VALVES - 1

Many of today's younger amateurs and electronics enthusiasts have never seen a valve. EA's former Editor in Chief Neville Williams describes the role of valves in building the radio and electronics industries.

CONVERTER FOR THE 144MHZ BAND

Add 2m reception to our recently described 6m NBFM receiver, with this low cost converter. Easy to build, it uses a flexible PLL system for the local oscillator.

What about *amateur radio* projects? Well, as you can see there are more of these than before – but we're very interested in publishing more. So if YOU have developed an exciting amateur radio project, contact Jim Rowe by writing to him at EA, 180 Bourke Road, Alexandria 2015. Or phone him on (02) 693 6620, to discuss the possibility of publishing it as a contributed article. As well as earning a fee, you'll also be helping to boost interest in amateur radio!

Take a look at the new, rejuvenated *Electronics Australia* – on sale at your newsagent at the beginning of every month. Or subscribe now, by phoning (02) 693 9517 or 693 9515.

Electronics Australia

Australia's Top Selling Electronics Magazine

PRODUCT REVIEW

GRAHAM THORNTON VK3IY

The Bencher Iambic Paddle

An electronic keyer is an achievable project for the average home-brewer; however, the construction of a mechanical paddle to operate it presents difficulties to most amateurs. The Bencher Iambic Paddle is designed to meet this need.

For the uninitiated, a definition of 'iambic' is in order. If the dot and dash paddles of such a keyer are actuated simultaneously, a series of alternating dits and dahs results. This closely resembles the sound of iambic pentameters beloved by poetry teachers. Hence the name. Such keyers are characterised by dot memory - a following dot may be initiated during the transmission of a dash. This has the advantage of economy of motion.

The Bencher Paddle is mounted on a solid steel base 1.5 cm thick. The base is 10 cm wide by 9.4 cm deep. The total weight of the instrument is 1.25 kg. Three finish options are available: black, chrome or gold. The instrument has mirror symmetry about a vertical plane mid-way between the two clear-plastic paddles.

A bracket connects each paddle to a movable, gold plated, solid silver contact. Seen from above, the face of this contact is at an angle of 135 deg to the paddle. A similar but stationary contact opposes frontwards. This latter contact is mounted on the end of an Allen-keyed grub screw, which is threaded into a split stud projecting vertically from the base. A further screw compresses the 'split', firmly locking the adjustment screw.

The contact-paddle bracket connects to a front-facing outward-curving semi-annulus, at the axis of symmetry of the latter. Two nylon bushes are vertically opposed near the inner extremity of the semi-annulus. Horizontal steel spindles with tapered ends, project forward from the flat face of an immovable short cylinder mounted to the rear. These spindles fit neatly into the nylon bushes, forming needle bearings which together act as the fulcrum of the rotary system. The tension spring mounts onto a radially directed set screw, projecting inside the semi-annulus. The entire rotor system is held in place on the spindles exclusively by this tension spring. Rotation of the set screw alters the point of application of the spring tension, thus varying its moment about the fulcrum.

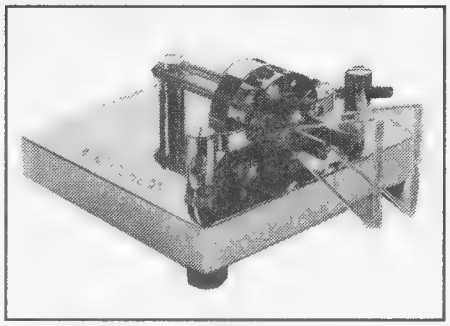
Three solder lugs are fitted underneath the base, together with a cable clamp to protect the connections. The Allen key, supplied with the equipment, fits neatly under the base in a special battery - connector type clip. Three rubber feet ensure a firm grip on the operating table.

I found the instrument very pleasing indeed to use. A magazine review cannot really do justice to the device. A hands-on (and eyes-on) appraisal is really necessary for an individual to appreciate its quality. I could detect no tendency whatever for the instrument to slide when one paddle only was used; a variety of surfaces was tested. With the particular tension setting on the model supplied for review, only one or two grams of thrust was necessary to actuate the contact. 200 grams of thrust (the limit of the spring balance) did not produce any sliding whatever. There was a tendency for the feet to lean somewhat when keying; however this resilience gave a pleasant cushioning effect.

This device cannot be described as an 'el cheapo'. It is perhaps not appropriate for the occasional CW user. However, for dedicated morsiacs (such as this review author!) it is an investment which deserves honoured place in the shack. From the quality of its design, materials and workmanship, it can be relied on to give a lifetime of faithful service. It should also maintain a high resale value. You can see your face in the chrome placed version - perhaps this might be an added incentive for the YLs! The instrument almost justifies a place as a piece of purely decorative art! The gold plated option, at more than twice the price of the chrome equivalent, would be the exclusive preserve of the wealthy connoisseur! Seriously though, it is not a toy, but, a precision instrument. It is a tribute to the watch-maker's art, from which it is obviously derived. If I am permitted one criticism, such a magnificent device should have a permanent dust cover - using a plastic bag as temporary protection between uses seems like sacrilege! (It seems that the Editors of QST share this view. Page 3-9 of the latest 'Hints & Kinks' shows a design for a plastic cover for the Bencher paddle.) The final price is not clear at the time of writing, but after the sales tax people and the Post Office are satisfied, there will not be too much change from $200 for the chrome model, delivered by post. Thanks to Leigh Campbell of Pro-Foto Industries, Canberra for supplying the evaluation model. Sales enquiries should be directed to his firm whose address is: P O Box 501, Fyshwick ACT 2609.

Further Reference - Pounding Brass, Gil Griffith VK3CQ AR Jan '89.

ar



The Bencher Iambic Paddle

BENCHER IAMBIC PADDLE

THE ULTIMATE KEYER!

AS REVIEWED IN THIS ISSUE

THREE MODELS TO CHOOSE FROM: BLACK; CHROME & GOLD

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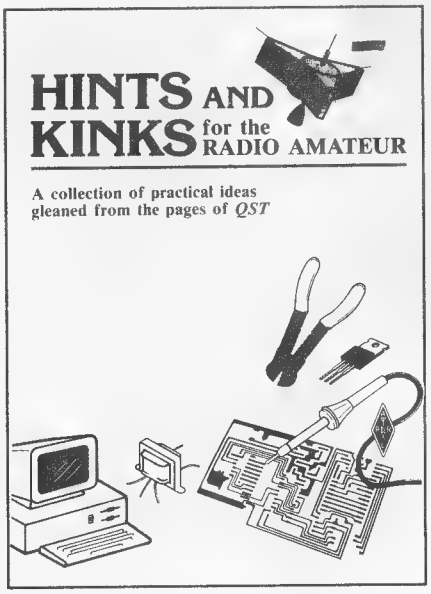
BOOK REVIEW

Hints And Kinks For The Radio Amateur

Jim Linton 4 Ansett Cres, Forest Hill 3131



The 12th edition of this publication is like its previous editions a collection of practical ideas gleaned from the pages of the ARRL journal QST. In its 12 chapters you will find a wide range of innovations and wizardry, and the book is fully indexed.It shares the hands-on experience of QST contributors in virtually every aspect of amateur radio. Since 1933 "H and K", with its fixes, tidbits, updates, projects and practical tips, has become an established part of the amateur radio publication scene.

This updated version replaces the previous edition released seven years ago and is sure to take pride of place in many a radio shack bookshelf. It offers a range of useful ideas for both the old hand at amateur radio and the newcomer. Chapter 1 contains ideas for the radio shack including safety aspects, operating comforts, and techniques to make QSOs more pleasurable. Chapter deals with many hints for receivers and transmitters with some modifications for specific commercial rigs. Chapters 3 and 4 are devoted to CW devotees and digital modes respectively, with ideas for using computers in the shack. Chapter 5 concerns antennas, feed lines and things which go between or are appended to these two. Chapter 6 is entitled Shop Secrets and has tricks of the trade. Testing and test gear are covered in the 11 pages of Chapter 7. The next chapter is full of items for mobile operators and guidelines for installations in modern cars with their complex state of the art auto-electronics.

In the remaining chapters are to be found ideas and practical applications for VHF and UHF antennas, amplifiers, tone generators, power supplies, taming interference, a world time finder slide rule. The 160 page 12th edition lives up to its name and upholds the reputation it has earned since first delighting radio amateurs in 1933. Hints and Kinks available through WIA Divisional Book Shops is highly recommended for those who like to get involved in some practical work or a weekend project.

PIRATES JAM POLICE

A gang of pirate radio operators had jammed and engaged in harassment on police frequencies in Adelaide for several months, according to the Department of Transport and Communications.

The illegal activity also occurred on radio channels used by other essential services and private radio networks.DOTC state manager, John Wilson said the pirate operators targeted a number of essential services, including the police, by interrupting their radio broadcasts.

Mr. Wilson said pirate operators had conducted a campaign of illegal activities, including jamming transmissions and harassing legitimate operators.Using sophisticated mobile and portable transceivers the pirates operated at random by day and night.He said the illegal transmissions were quite hard to track down and radio inspectors monitored them for several weeks.

After a while a pattern to the transmissions emerged and gradually the RIs pieced together snippets of information about the pirates.In a series of raids on several Adelaide houses the RIs and South Australian Police CIB detectives seized radio communications equipment, including scanners, CB radios and illegally modified transceivers.DOTC said charges under the Radiocommunications Act were expected to be laid against seven people.

Contributed by Jim Linton VK3PC

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Superhet - DC Receiver for 3.5 - 4.0 MHz
From page 15

Parts List for the Super-DC Receiver

Capacitors

3.3pF	NPO ceramic	C27, C29
10pF	NPO ceramic	C3
25pF	air trimmer	C2, C4, C25, C34
27pF	NPO ceramic	C23
47pF	NPO ceramic (see text)	C13, C14, C15, C16, C17
82pF	NPO ceramic	C26
100pF	air variable	C24
150pF	styroseal	C5
180pF	styroseal	C1
220pF	styroseal	C35, C36
470pF	disc ceramic	C41
0.01uF	disc ceramic	C8, C21, C22, C38
0.47uF	(or 0.1) disc ceramic	C6, C7, C9, C10, C11, C12, C18, C19, C28, C30, C31, C32, C33, C37, C46
0.1uF	disc ceramic	C49, C50
0.1uF	mylar (greencap)	C39
1uF	tantalum >16V	C43
10uF	tantalum >16V	C40, C44
100uF	electrolytic >16V	C47
220uF	electrolytic >16V	C42
470uF	electrolytic >16V	C20
1000uF	electrolytic >16V	C45
2500uF	electrolytic >35V	C48

Resistors

10 Ohm 1/4W 5%	R5, R10, R24, R28, R35
100 Ohm 1/4W 5%	R2, R15, R22, R33
150 Ohm 1/4W 5%	R16
470 Ohm 1/4W 5%	R18, R27
500 Ohm TRIMPOT	R9
1 kOhm 1/4W 5%	R6, R7, R14
1.5 kOhm 1/4W 5%	R11, R23
3.3 kOhm 1/4W 5%	R1
2.2 kOhm 1/4W 5%	R29
20 or 25 kOhm log pot	R34
22 kOhm 1/4W 5%	R26
33 kOhm 1/4W 5%	R31, R32
47 kOhm 1/4W 5%	R25
68 kOhm 1/4W 5%	R12, R19
100 kOhm 1/4W 5%	R8, R17, R21
100 kOhm 1in pot	R3
220 kOhm 1/4W 5%	R4, R13, R20, R30

Semiconductors

MPF102, 2N5457 etc	Q5
MFE131, 40673	Q1, Q2, Q3, Q4, Q6
2N2222, 2N3904 etc	Q7
LF356 8-pin DIL IC	U1
LM386 8-pin DIL IC	U2
7812 +12V regulator IC	U3
6.8V/400mW zener	D1
200V/1A diode	D2, D3, D4, D5, D6

NCRG JMFD 1989

JOHN SPARKES VK6JX
83 ANEMONE WAY MULLALOO 6025

Or How to plan and work very hard, set up the biggest and best multiband portable field station in Australia, have a fantastic time, and STILL lose!

1988 — "I don't believe it..." This phrase echoed through our otherwise silent clubroom at the first Northern Corridor Radio Group meeting after the 1988 JMFD results were published in AR.

Even 1000 contacts — all on natural power (and I mean honestly natural!) was nowhere near enough to clinch the open section for our team in 1988 — even while sporting this VI88WA callsign.

"Something has to be done about this..." No one in Australia seems to realize that VK6 is like another country on 80 and 40 metres — and coming in on the side of triband yagis on 20, 15 and 10 metres isn't easy either!

The contest manager understands our problem but his hands are tied — changing the points scoring system to put VK6 on a par with the eastern states would make his letter box bulge and his job unbearable.

Still, what the heck — the important thing is to have fun ... right? ...

"We're gonna get our revenge this year! We'll even go in the phone only section so everyone will want to operate! 8dB+ gain antennas on all bands except 80 — this'll shake 'em up!" Thus spoke our president — we all agreed but deep down the words had a hollow sound.

Friday afternoon (T — 18 hrs) rolled around too slowly. Knock off early — wait at home for Phil 6ZPP to turn up. When he arrives he welcomes my extra ballast — the roof rack looks like OTC fell on it.

Meet up with John 6ATA, Jack 6KDX, Alek 6APK and John 1NCO/P and take off. Destination — Tandara Wilderness Camp, about 60 km North of Perth and out in the Marri tree, black sand boondocks NE of Yanchep. Everyone else to come up later, or early tomorrow morning.

At the gate, Dennis 6ZN and Syd are already waiting — "Sorry, we're late ...". The site is great. Toilet block, running water from bore and windmill, lots of big trees with large clear areas in between. Not too hot as a VHF/UHF location — but local apathy precludes any expectations of a big score from these bands anyway.

Tents or antennas — what first? Let's have another tinny and plan this out ... Antennas! 40 Metres goes up with the aid of a few good throws over 36 foot high branches. Three 1/4 wave verticals in phase (3 element curtain array to the plebs) — BEWDIFUL!

Breakfast L to R Ray VK6JRD, Son Nick VK6JMS, John VK6ATA, Phil VK6ZPP and John VK1NCO/P

As the evening closes in, the VHF/UHF station is erected. 13 elements on 70cm, 14 element slot on 2m and 6 elements on 6m — all up at about 25 feet. 100 watts on all bands, 9913 and N connectors — loss is not a problem. Loud Russian TV carriers below 6 metres bode well for some TEP in the contest. The rest of the highly tuned operating team arrive gradually as a gibbous moon glints off all the hardware now in the air.

Last on the list for Friday night is 20 metres — a 2 element delta loop (Old Faithful!). A quick tweak on the gamma match, and 100W into a 1:1 SWR brings in plenty DX. Things are looking great.

And now, what everyone has been waiting for — tinny time, chew the fat then bed by midnight (T — 9 hrs).

First light is about 5am, (T — 4 hrs). Everyone is up, cuppas are passed around, breakfasts are gobbled up.

10 metres, another 2 element delta loop is installed and tested. 15 metres, a 2 element V-beam is stood up on a lattice mast at about 30 feet.

Since first light most of our naturally charged batteries have been lugged to the operating positions, each of which is equipped with at least 2 borrowed solar panels. The spares are placed in a central sunny spot and the rest of the solar panels are connected up to them. The sky is cloudless, and natural power is no problem. 10 and 20 metres are open but 15 is still waking up. By now, everyone who's anyone is on site! (T — 1hr) A quick operating schedule is posted, log sheets and pencils are distributed and the president gives all a pep talk. Not really necessary as everyone is rarin' to go!

(T — 10 secs...) Local time 0900 hrs — Go!!

10 metres is working the world, as well as the odd VK and ZL station! 15 gets off to a slow start, but by 1100 hr local is going well. 20 is universally good.

While the contest operators are sweating it the 40 metre radial system is laid down, and the tuning unit tweaked up for 0% reflected power. On 80 metres, a full size folded dipole is pulled up to about 50 feet. (A 12 foot fishing rod got the line over the high branch — well done Alek!) But Murphy has fouled up the 4:1 balun connections, so after much cursing and testing, a pre-tuned G5RV (standby) antenna is pulled up instead — works great. Roll on Saturday night! Lunch is generally a "grab what you can when you can affair!!"

At 1300 hrs, 3 Weber BBQs are stoked up to cook dinner. The Club has provided 11 kg of prime beef with jacket potatoes and onions for all participants to enjoy. The aroma around the central cooking area is heavenly.

At about 1600 hrs under a veil of secrecy, our secret weapon is deployed for immediate action. A 6 foot diameter balloon is inflated with Hydrogen gas. This beautiful orb then pulls up a 5/8 wave vertical on 80 metres! A comprehensive radial system is laid down, and a tuner at the base zeroes it in. How will it compare to a G5RV? Only the night knows! The sea breeze has now come in strongly and keeps turning our 5/8 vertical into a sloper — doesn't matter!

I mentioned VHF apathy before — but this incident takes the cake. A local station was contacted on 2m, and asked very nicely for a number. The reply — a sneer, then "73". This operator will be dealt with summarily at this years NCRG HAMFEST!!!

1800 hrs local — all operating ceases as dinner is served. All operators, SWL's and family members are all seated around the cooking area and a hearty meal is washed down with plenty of Western Australian beer!

After dinner, operating commences in earnest. 80 metres is fired up — but very few contacts result as no one can hear us (or they don't want to hear us?!) Lots of

eastern states and ZL stations can be heard — but we might as well be on the moon — very few came back. What happened to the 5/8 vertical? The G5RV soundly thrashed it! Most stations on 80 metres are obviously coming in at very high angles. The vertical was too good for its own good! What a shame there was no DX to experiment with!

40 metres is slightly better but it's a bit disheartening when you've worked hard for 2 hours and have 15 contacts, and VK4 and VK5 and ZL stations have 150 contacts. Again, 40 metres is another world from this side of the continent. 10 metres is pumping. Lots of DX is rolling in on 10, 15 and 20. 6m comes and goes with JA's being worked occasionally.

The evening passes quickly, and by 1am Sunday morning, all are fast asleep building up some strength for the final mad dash starting at first light. All except Tony who is still flogging the 20 m horse, which hasn't died yet!

First light Sunday morning. No time for breakfast — quick cuppa and into it. 10 minutes later 40 m is stymied again as all the stations who can hear us are worked for the last time this year.

Operators try frantically to get those last few contacts ... QRZ doggy x-ray!!

0900 hrs local — pencils and mikes down!

A mad scramble now ensues as the VK6 divisional broadcast is going to be relayed on 40 m and 6 m from the field day site. Talk about dedication! Still, it was worth it, as a total of 12 stations

Jack VK6KDX and son Hamish operate the VHF/UHF station. Note solar-panel-destroying trailer in background

come in on the callback.

Wearily, with the hot sun on our backs, all antennas are dismantled, tents are taken down and we sadly prepare to leave our best Field Day site yet.

Murphy strikes for the second time (I suppose that only twice on a Field Day weekend must be some sort of record!) on the limestone road out of the camp. A trailer tyre blows and dumps a Weber BBQ on to a solar panel. Whoops — well, that's one we can't borrow next year...

A fantastic time was had by all at the Field Day. I don't believe it would be very probable that a better, more dedicated group of people has ever fired up on JMFD from a portable field location. Do we have a chance of winning with the current scoring system? We don't think so.

Will VK6ANC be back, regardless, bigger and better next year? Believe it!!!

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FIRST HAM CONTACT BETWEEN BV AND BY

(Originally published in a CRSA newsletter. Report by BZ4RC. Translation by Edward Teo. Ed)

On the 12th December 1989, Mr Yang Leong Yong BV2LB had a QSO with Mr Chan Foong at BY4RSA for the first time.

Mr Yang, an influential man in the amateur radio affairs helped to introduce ham radio activities into Taiwan. He told Mr Chan that in 1985 twenty-five students passed the amateur Radio Examination and since then fourteen stations have been set up within Taiwan.

In April 1989 a further seventy-nine students passed, out of a total of one hundred and eighty-three who sat the second examination.

Mr Chan at BY4RSA had also helped to introduce amateur radio activites into China.

BV2LB had put a lot of effort into convincing the Taiwanese authorities to allow amateur radio communication between China and Taiwan and he hopes this will become easy reality in March/April of 1990.

CONTRIBUTED BY
DAVID RANKIN 9V1RH

THE GREAT 1990 APRIL FOOLS' DAY JOKE (S)

BY JIM LINTON VK3PC

On one particular day each year practical jokers come to the fore and play tricks on others, who are then described as April Fools. Sunday, April 1, 1990, had plenty of April Fools among the ranks of radio amateurs throughout Australia.

On the VK2WI broadcast an item discused future developments of amateur devolution following on from the devolution of examinations. It said the natural consequences were that all Amateur Radio Service matters would be handled by the representative body, the WIA. The VK2WI broadcast said this would include licensing, issuing of callsign, and imposing on-the-spot fines for offences against the Radiocommunications Act. The WIA New South Wales Division told listeners it was considering the installation of a special computer to handle the allocation of callsigns. The item caused something of a stir.

Harry Atkinson VK6WZ, who runs the VK6 broadcast, was determined not to have an April Fools Day joke as part of his broadcast. So having completed the "joke-free" broadcast, Harry began conducting the 2-metre callback in Perth after the broadcast and asked for any stations visiting Western Australia to call in. A distorted signal from JA1APR was heard, and duly acknowledged. Later in the callback Norm Schroeder VK6NS had some QSP from the JA. "I've just had a telephone call from that JA, he says to add the letters India Lima to his callsign," Norm said. Harry admits he got caught and became an April Fool.

In Victoria the VK3BWI broadcast had an April Fools Day joke which caught hundreds of radio amateurs. A report on the broadcast announced the release of unique and prestigious callsigns which had single letter suffixes in the block VK3A to VK3Z.

It attracted a lot of response and had some 327 radio amateurs of all grades of licence from throughout Victoria, and even interstate, seeking to enter a ballot for the callsigns. There was virtual hysteria created, with hundreds of radio amateurs eager to get one of these special callsigns.

The item on the broadcast mentioned twice that entries to the ballot closed at midday — considered by the perpetrator to be an obvious clue to the validity of the item. A so-called "callsign telephone hotline" fitted with an answering machine was kept busy ... (which was actually the WIA executive office). As a matter of interest the callsign block VK3A to VK3Z had traditionally been allocated to experimental stations.

(It was perhaps unfortunate that the VK3 April Fool joke was not kept "in house" by quoting the VK3 phone, instead of inflicting unnecessary extra work on the Executive Office. One gentleman, at least, who drove a considerable distance to the VK3 Ashburton office, was reported as being distinctly "not amused" — Ed)

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CONTESTS

FEDERAL CONTEST MANAGER FRANK BEECH VK7BC
37 NOBELIUS DRIVE LEGANA TASMANIA 7277

Calendar

June

16 — 17th WIA Novice contest. (Rules this issue)

July

14 — 15th IARU HF World championship (Tentative dates)

Information regarding the results of the French "Championnat de France 1989" included the Australian results;

1st VK8XX with 33756 points
2nd VK2BQQ with 297 points
3rd VK4TT with 270 points

Please note that in the rules for the 1990 Novice contest that are included in this issue, the address to which the new Contest Manager wishes contest logs to be forwarded will be advised.

Ross Hull Memorial Contest 1989 Results

Callsign:	Contact Points:	Bonus Points:	Total Score
VK3XRS R Steedman	1593	3500	5093
VK3DLM L Mostert	1355	2650	4005
VK3ZJC J Martin	1406	1250	2656
VK5NC T Niven	569	1600	2169
VK3AUG N Sallman	1003	1000	2003
VK3BBB B Young	556	1300	1856
VK3AUI G Sones	523	900	1423
VK3CY D Clark	664	750	1414
VK3ELS I Morris	572	750	1322
VK3TDV M Binz	455	800	1255
VK3AOS R Blake	106	950	1056
VK3VF B McKenzie	290	500	790
VK1ZAR J Roberts	36	700	736
VK3BMV E Templeton	154	500	654
VK4AIZ D Friend	40	600	640
VK4XA S Coleston	34	450	484
VK5VB N Harwell	18	450	468
VK7ZAP A Perkins	54	300	354
VK3ZXY T Leith	75	250	325
VK3KTR R Rode	52	250	302
VK3ANP D Waring	20	250	270
VK5AFO D Cavies	4	100	104

Congratulations to VK3XRS, with the highest score. Roger will receive the winner's certificate and his name will be engraved on the perpetual trophy that will be held by the Victorian division until the next winner is announced in 1991. Certificates will also be given to the highest scoring stations in each locator Field.

Certificates for the top scoring stations in each locator Field are as follows;

Maidenhead locator field QE ...VK7ZAP
Maidenhead locator field QF ... VK3XRS
Maidenhead locator field QG ... VK4AIZ
Maidenhead locator field PF ... VK5VB

Comments on the contest have been favourable, those stations who made the effort to work the higher contest bands and looked for the DX stations reaped the rewards. Certificates will be made up in the near future and posted out ASAP.

To clear the decks, please note the following and correct your copies of "AR" accordingly. In the lists announcing the results of the 1989 RD contest please note that John VK5NJF (now VK5PO), was incorrectly listed in the VHF section as VK5NVF.

VK2DID was listed as VK1DID in the HF CW section.

VK1CC R Cook was the top scoring VK1 station in the HF CW section.

In the results of the 1989 Novice contest, Ray VK3MBU was listed as VK3BMU.

In the February issue of "AR" page 40, the printers missed out section "F" in the rules for the John Moyle contest, I hope that you all realised that this section would not have been dropped from this contest.

Results Of The 1990 Trial VHF/UHF Field Day Contest

Section "B" 24hr All band; Single op
VK3BBB/P B Young 566 points 30 squares 16980 total.
Section "B" Cat "C" Multi op
VK3ATL/P Geelong ARC. 596 points 40 squares 23840 total.
VK5ZUC/P VK5ZUC & VK5AJQ296 points 24 squares 7104 total.
Section "B" Cat "D" Home Stn
VK5NC T Niven 101 points 35 squares 3535 total
VK3XRS R Steedman 42 points 17 squares 714 total
VK5LP E Jamieson 17 points 7 squares 119 total.
Section "A" 12hrs Cat "A" single op single band.
VK4NEF E Fittock 186 points 6 squares 1116 total.
Section "A" sec "B" All band single op
VK3DLM L Mostert 340 points 26 squares 8840 total
VK3XEX M Batt 142 points 17 squares 2414 total
VK4IY R Mutzelburg 16 points 3 squares 48 total
Section "A" cat "D" Home stn
VK7JG J Gelston 16 points 8 squares 128 total

Certificates to the top station in each category should have arrived by the time you read the results. Comments received with your entries will be passed on to the Federal contest co-ordinator VK6NE with the hope that the contest can be improved upon and kept going. Lack of propagation seems to have been the main factor in the low participation this year, as was the case with the Ross Hull memorial contest, perhaps changing the dates of the VHF contests would help.

Your helpful comments on this and the Ross Hull contests will be passed on to the incoming contest organisers. As this will be my final column in "AR" may I wish you all GOOD CONTESTING. I will now get my station handbooks out and refresh myself on how to turn my rig "on". 73 ... Frank Beech VK7BC.

VK Novice Contest 1990 Rules

Contest Period

From 0800 UTC June 16th 1989 until 0800 UTC June 17th 1989.

Objects Of The Contest

To encourage operation of amateur radio stations in Australia, New Zealand and Papua New Guinea, with special emphasis on contacts with Novice and radio club stations.

Stations Eligible

Only stations in VK, ZL and P2 call areas may enter. No stations outside these call areas are permitted to be worked or entered in a log for the purpose of this contest. Except for club stations, no multi-operator working is allowed. Stations in the same call area may contact each other as well as stations in other call areas.

Contest Bands

All operations must be confined to within the Novice frequency sub-band allocations in the 10, 15 and 80 metre bands. No cross-band operation is permitted. Novice allocations VK HF; 3.525-3.625 MHz, 21.125-21.200 MHz, and 28.100-28.600 MHz.

Modes Of Operation

Only phone or CW may be used. In the CW mode, operation must not exceed 15 words per minute.

Contest Sections

Section (a) Phone — Novice/Full call.
Section (b) CW — Novice/Full call.
Section (c) SWL.

Scoring

For contacts with a novice station — Five points.
For contact with a club station — Ten points.
For contacts with a Full call station — Two points.
Listener section;
For Novice to Novice contacts — Five points.
For Novice to Full call stations — Two points.
For Full call to Full Call stations — Two points.
For any contact with a radio club — Ten points.
For phone stations, call CQ NOVICE CONTEST.

For CW stations, call CQ N.

Contacts

Any station may be contacted TWICE per band, provided a period of at least 12 hours has passed after the first contact.

Number Exchange

Section (a), On phone. Stations must exchange a serial number comprising an RS report followed by three figures. The figures must commence at 001 for the first contact and increase by "one" for each further contact.

Section (b), For CW stations. As for phone, but the report is an RST followed by the serial number.

Log Entries

Each log should be laid out so as to provide columns in the order given as follows;

Date/time UTC. Band. Mode. Station contacted. Report and serial number sent.

Report and serial number received. Claimed score. Each log sheet must be endorsed at the top "VK Novice Contest 1989".

Total claimed score for each page must be shown at the bottom of the page.

Front Sheet

A front sheet must be attached to the contest log and must carry the following information:

Name and address of operator. Call sign. Station location. Section entered. Score. Declaration; The front sheet must also carry a declaration which states. I hereby certify that I have operated within the terms of my licence, and the rules and spirit of the contest ... This declaration must be followed by the signature of the operator ... with date.

In the case of a club station, the entry must be signed by a responsible officer of the club committee, or a licensed operator delegated by the committee to do so. In the case of multi-operator stations, the call signs of participating operators must also be shown on the front sheet.

Regulations

All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

Entries To

Logs are to be forwarded to: The Federal Contests Manager. Entries must be posted so as to reach the Contest Manager no later than July 20th 1989. The address for entries is: Federal Contests Manager, Neil Penfold VK6NE. Envelopes are to be endorsed "Novice contest".

Certificates

Certificates will be awarded to the top scoring stations in each section at the discretion of the Federal Contest Manager.

Certificates will also be awarded to the top scoring Novice station in each call area.

And to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

Trophies

The Keith Howard VK2AKX Trophy for the Novice entrant with the highest aggregate (phone and CW) score, and the Clive Burns Memorial Trophy for the Novice entrant with the highest CW score (see WIA news this issue) are perpetual trophies on permanent display at the Executive office. In each case the annual winner will receive a suitably inscribed wall plaque as permanent recognition.

Certificates may be awarded at the discretion of the Federal Contest Manager. Provision is made for adjudication in the case of a tie.

Operator

A person may only submit one contest log per mode.

Logs for entries where an operator uses more than one call sign whilst operating in this contest will not be accepted.

Disqualification

The contest disqualification criteria as published annually in "Amateur Radio" will apply. Any station observed during the contest as constantly departing from the generally accepted code of operating ethics, may also be disqualified.

Note: see August issue of "Amateur Radio" for the disqualification criteria.

Note also "Contacts" now twice per band.

Australasian Sprints CW And Phone July 1990

The Adelaide Hills Amateur Radio Society Inc is pleased to announce that the fifth series of the annual Australasian Sprints will be held during July 1990.

Both of these contests, which are for CW and Phone operators respectively and are of one hour duration on 80 metres, are open to all appropriately licensed amateurs in VK, ZL and P2 call areas. As in past contests, a section is provided for SWLs.

The Australasian Sprints are endorsed and co-sponsored by the South Australian/ Northern Territory Divison of the Wireless Institute of Australia and the Adelaide Hills Amateur Radio Society, and Certificates and Trophies will be awarded to call area winners and overall winners.

The reasoning behind the concept of the Australasian Sprints is simple. Most contests are long with fairly complex rules, and participation, except by serious contesters, is tending to diminish. The Australasian Sprints, being of only one hour duration, are quick and simple, providing a busy hour of frantic (hopefully) or frustrating (possibly) operation. They are challenging but fun.

Object Of The Sprints

The Operator's basic goal in the Sprints is to make (and SWLs to hear and log) as many contacts as possible, without duplication, during an hour of operation on a single band. Any contact with a VK, ZL or P2 station on 80 metres during the contest period can be counted, but a station may be claimed only once.

Eligibility

The Australasian Sprints are open to all licensed amateurs, or groups of amateurs using a single call sign, eg club stations, anywhere in the VK, ZL and P2 call areas.

Contest period

1200 to 1300 UTC, July 7, 1990 (CW only)

1200 to 1300 UTC, July 14, 1990 (phone only, any legal mode)

Frequencies

For the CW Sprint, frequencies between 3.500 and 3.700 MHz may be used.

For the Phone Sprint, frequencies between 3.535 and 3.700 MHz may be used.

Contest Call

CQ Sprint or CQ Test or CQ Contest

Exchanges

Minimum exchange for a valid contact will consist of a signal report and a three digit serial number. The serial number may start at any number between 001 and 999 but will revert to 001 if 999 has been reached.

Logs

Contest logs must show for each contact the time (UTC), callsign of station worked (both callsigns for SWLs), report/serial number given and report/serial number received. Each log must be accompanied by a cover sheet showing the name and date of the Sprint (CW or Phone), the total number of contacts claimed and a statement that the Operator(s) has abided by the rules and spirit of the contest. This cover sheet is to be signed by the operator(s) and personal callsigns added where multi-operators enter using a club callsign. Any special conditions such as QRP or mobile operation should be mentioned in the statement. Any comments you wish to make will be welcomed by the Sponsors.

Logs are to be in the hands of the AHARS PO Box 401 Blackwood SA 5051. Attention Contest Manager, no later than Friday August 17th and the envelope is to be endorsed CW, Phone, or SWL Sprint.

Awards

Certificates will be awarded to the highest score in each VK, ZL and P2 call area for both the CW and Phone Sprints. Trophies will be awarded to the outright winners of both. Certificates may be awarded to other operators whose performance was, in the opinion of the Sponsors, exemplary.

SWLs

Certificates will be awarded to the highest scoring listener log in the VK, ZL and P2 call areas for both the CW and Phone Sprints.

Any entry which is clearly in violation of the rules or spirit of this Contest or which contains an excessive number of claimed duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed), may be disqualified. The decision of the interpretation of these rules, the granting of awards and disqualification will be final.

These Contests are recommended as a good Saturday evening entertainment. If you have never entered a Contest before, here is a good, friendly time to start. Join in and enjoy the fun. Those operators who have competed previously can hardly wait for July.

David Box
VK5OV Contest Manager

HOW'S DX

STEPHEN PALL VK2PS
PO Box 93 DURAL 2158

Bhutan-A5

As I write these lines in the first days of April, listening to my transceiver, there is quite a pile-up around 14200 kHz. The northern American continent is determined to work Jim, VK9NS who is on a DXpedition in Bhutan.

Jim has been working on this project, on and off, for the past 3 years. His aim is not only a simple DXpedition. Through this amateur radio activity, personal contact and co-operation, he wants to establish a situation which might convince the Bhutan Authorities that continuous amateur radio activity is good for that country.

I had to turn to various encyclopedias to find out more about this mysterious country.

Bhutan lies in the Eastern Himalaya between India and Tibet. It is a small mountainous country, of about 47,000 km^2 area, with approx 1.5 million population. The greatest distance from South to North is 177 km and from the West to the East 322 km. In the north and north-west, several mountain peaks are over 7000 m. The capital of this hereditary kingdom is Thimphu with a population of about 12,000. The official language of the country is Druk-ke, a Tibetan dialect. The country has a population density of 28 persons per km^2. Beside agriculture and animal husbandry, there are some small industrial undertakings and some coal mining. The climate of the country is extreme : it is very hot in the lowlying foothill regions, but extremely cold in the Great Himalayas. I heard Jim saying in one of his skeds, that snow was falling and the room temperature, even after heating, was hovering around 12°C. Bhutan had little contact with the outside world until the late 1950s. The Kingdom is governed by a hereditary King since 1907. The present King, Jigme Syngie Wang Chuck, came to the throne in 1972 after the death of his father.

It was in early March when Jim received a telex advising him that permission was granted to enter the country, and that he could operate amateur radio whilst in Bhutan. Among many conditions of the entry was one which is quite common in undeveloped countries and in some eastern block European countries, the exchange of hard currency into the local one. In Jim's case this was set around US$200 per day. Jim's trip has been sponsored by the Heard/Island DX Association (HIDXA). Jim arrived at Bhutan on the 21st of March, and intends to stay until the 10th April. I leave the mathematical calculation of the total expenses to you and the idea of donations to HIDXA, to your good DX sense. QSL address is :

P O Box 90 Norfolk Island 2899 South Pacific.

Jim does not operate nets and has no fixed time of operation.

Everybody is welcome to contact him. He was heard around 1100 UTC transmitting on 14142 and listening around 14200. He was also heard on 28 MHz, on 21295 and on CW at the lower end of that band, and he has operated RTTY. Jim used a vertical antenna and the callsign of A51JS. QSL to : VK9NS, and his address is correct in the Australian Callbook.

Bangladesh - S2

Jim planned that on his way back he will stop in Bangladesh. He has a visa to enter. However, at the time of writing this, he has no permission to operate. It is interesting to note that there was no amateur radio activity from Bangladesh since 1981. However there was a surprise 24 hours "pilot"operation from this country on the 15/16th of March by various Japanese operators, with JA1UT as leader. The short operation was preliminary research into the possibility of resuming amateur activity in Bangladesh. About 1000 QSOs were made with 21 countries. According to other unconfirmed reports, three Japanese operators went to Bangladesh on the 2nd of April for a short operation. It looks like things are changing for the better in these countries as far as amateur radio is concerned. Other sources are quoting Vince, K5VT, that he will be active from S2 as from the 6th of April for 10 days.

Spratly Islands - 1S

No sign or rather "no signal" yet on the bands from this proposed activity. Rumours are flying around as usual. The expedition allegedly needs $40,000 and there is no helicopter or doctor yet. Other sources say that the JAs decided in the last minute not to take part. Yet another source quotes the "Voice of Free China" (Taiwan), which allegedly said that the island will go under Taiwanese administration as from the lst of August next. But delicate expeditions, like this, with political power-play backgrounds, are always surrounded by a secrecy "curtain". They suddenly appear and then disappear. It is quite possible that by the time you read this in May, the whole activity is already over, if it will happen at all.

Jarvis Island - KH1J?

A long detailed leaflet hit my desk in the last days of March about this proposedDX pedition. Seven experienced amateurs, Peter AH3C, Eric K2NA, Martti OH2BH, Wayne N7NG, Jim WA6AUE, Masahiro JG2BRI, and Toni KN3T will take part. The expedition is scheduled to arrive at the Island, which is a Wildlife Refuge under US Administration, around the 13th of April for a ten day activity. The callsign to be used is planned to be AH3C/KH1J. Representatives of this group have prepared a submission to the DX Advisory Committee of the ARRL, for a separate country status. Stay tuned for further news of what really happened, in the next issue of "AR".

Abu Ail Islands - A15

This island group is situated in the southern part of the Red Sea, near the Republic of Yemen. One of the islands - Quoin - has a lighthouse on its highest peak, which until now was under the control of the Red Sea Lights of London. This organization is relinquishing the control of the lighthouse, and on the 1st of April 1990 the Republic of Yemen will take over the lights. Out of the blue (as usual) came the German DX Group : Baldur DJ6SI, in CW mode and signing A15AA, DJ6JC on RTTY signing as A15AC and Carl DK2WV signing as A15AW on SSB. The short operation was from the 23rd of March to the 31st of March. I was lucky to work Carl on the last day on 14199 on the longpath with S5. QSL to each operators home address.

Namibia - V51

After many years of turmoil and civil war, on the 21st of March 1990 Namibia became Africa's latest independent nation. The old ZS3 prefix has disappeared and a new one -V51 was born. To celebrate the occasion, a commemorative station was activated with the callsign V51NAM, which was very active on all bands for several days and with different operators. QSL to: P O Box 1100, Windhoek 9000, Republic of Namibia, Africa. Please indicate on your card the operator's name. A few days later, I worked Gerd V51GB ex ZS2GB. QSL to Box 1165, Tsumeb 9000, Republic of Namibia, Africa.

QSLing To The Soviet Union

Since the arrival of "glasnost"more and more Soviet amateurs are asking for direct QSL. In the last two issues of "AR" I have discussed how to QSL to foreign countries and how to avoid the loss of your card through the mail system on the "other side". Ed, NT2X, who has extensive correspondence with the Soviet amateurs, has given some interesting pointers in the "DX Magazine" April issue, under the title "Mail to the USSR". Here are some of his thoughts quoted verbatim: - "Put no callsigns on the outside of the envelope. Do not mail SAEs to the USSR. They are a waste since the envelopes are standard USSR size, and they attract attention, due to the thickness of the incoming mail, and due to their

foreign appearance in the outgoing mail. Conceal your IRCs or US$1 between the QSL card and another piece of paper. Avoid flashy stamps. Under no circumstances send your QSL cards with IRCs or $US1 via Box 88 Moscow. Everything else will be removed, and only the QSL card will be forwarded to the recipient. These are the thoughts of Ed, NT2X. We have reprinted them without any comment.

Novice VK Net

Rob, VK3VOS asked me to publicise the emergence of a "VK" Novice Net on 21 MHz. It operates for the time being on Fridays, Saturdays, Sundays and Mondays, on 21192 and it is aimed at novice stations in VK and ZL, but anyone may join in. This net is the "younger brother" of the ANZA net which operates on 21205 kHz.

The net starts at 0530 UTC. So all you novices (and many years ago I was one of you) who until now only "listened" to the "juicy DX" a little further up, please participate in the doings of this net. Rob VK3VOS is waiting for you.

Chatham Island - ZL7

Dusty ZL2VS, who during January 1990 operated as ZM7VS, has sent me a short note describing some events from his operation. Chatham Island is the main island of a group which lies about 800 km South East of the capital city of Wellington New Zealand. The Islands are fairly bleak, being exposed in all directions to the winds of the South Pacific. Gale force winds are quite common. The population is around 850, and the main industry is fishing with a little wool production, but the islanders are dependent on mainland New Zealand for all supplies. A supply boat calls once a month and the old Argosy aircraft call in twice a week, weather permitting.

The equipment used was a TS430S running "barefoot" to a 3 element Yagi up about 7 metres fixed on a heading over the North Pole. The station operated every day from the 15th of January to the 31st January with breaks from about 2000 to 0400 UTC due to poor propagation during that period. The total QSOs of 5923 could have been better, if openings on 10 and 15 metres had been better from the Chathams. A single dipole was used on 80/40 metres with an ATU. Dusty goes on to say that at one stage his station lost all the incoming and outgoing signals. Reason : 300 sheep broke loose and trampled down the fence at ZL7TZ's QTH, from where Dusty was operating, and broke the coax feedline. QSL to ZL2VS.

Expedition to South Sandwich and South Georgia Islands

Watch this space. This activity will take place late November to early December this year. In our next issue we will give you all the details.

South Yemen - 70 and North Yemen - 4W

According to unconfirmed reports, 9K2DR intends to activate in the company of three other 9K amateurs both South Yemen and North Yemen for a period of one week each, on the 20-15- and 10 m bands. No call sign has been allocated and they expect to receive their permits early in April. The operation is planned at the end of April or early May.

Interesting QSOs and QSL Information

To save space I have omitted the repetition of kHz after the frequency and UTC after the time.

9M8MKS Chan - 14230- SSB at 1535. This is a club station in Kuching, Sarawak. The operator should give you the QSL route. One operator on the 2nd of April was Bong, and QSL via 9M2FH via the Bureau.

4K2OIL Serge - 14007 - CW at 1047. QSL via UA9MA via the Bureau.

S01EA - 21295 - SSB at 0555. QSL to Jose, EA2JG : Arseli Echeguren Bardeci Las Vegas 69, 01479 Luyando, Alava, Spain.

7X3DA - Hamid - 14041 - CW QSL to : Box 1033, LM, 9300 Laghouat, Algeria.

CU2DG - Orlando - 21243 - SSB at 1045. QSL to: Orlando Resendes Silva, Rua Coronel Chaves 70, R9500, Ponta Delgada, Sao Miguel, Azores Isl. Portugal.

9Q5DX - 14 MHz - CW - QSL to: KQ3SF: Henry J Kessler 8 Preakness Way, West Barnstable, MA 02668 USA

9N90ILY 21MHz - CW - QSL to: JN1XWO via Bureau.

4K2OT - Franz Josef Land - 21287 SSB at 0959. QSL to: UB5KW via the Bureau

9J2AL A1 - 14222 - SSB at 0636. QSL to: P O Box 32481 Lusaka, Zambia or via Bureau to WD0HHM

RB3MR/JT 21MHz - SSB at 1034. QSL to Box 639 Ulan Bator, Mongolia.

9K2HA Faisal - 14190 - SSB at 2205. QSL to: PO Box 58158, Rabiah, 85351 Kuwait.

4K2BPU Franz Josef Land - Vlad - 14020 CW at 1036. QSL via UA9MA via the Bureau.

5B4ZL John - 21205 - SSB - QSL via: ZC4EPI via the Bureau.

CP1JX Wolf - 14250 - SSB at 0953. QSL via the Bureau.

J88BS Len - 21205 - SSB at 0611. QSL via WA4WIP : Richard G Tesar, 3093 Linwood St Sarasota, - FL34232 USA

FM5WD Lucien 21205 at 0535 SSB. QSL via: W3HNK: Josef L Arcure Jr, P O Box 73, Edgemont PA 19028 USA

ZP5ZR Gabriel - 14222 SSB at 0622. QSL via the Bureau.

V47KTG Toby - 14222 - SSB at 0648. QSL to A16M : Barry D Friedmann 6933 Mammoth Ave Van Nuys, - CA 91405 USA

CN8GI - Ahmed, - 14250 SSB at 0610. QSL to: DK2WV: Carl Heinz Ilg, Max Loewe Str 15 D-8014, Neubiberg, West Germany.

PZ1EL Ramon - 21205 - SSB at 0611. QSL to: Box 9931, Paramaribo Surinam.

5W1AT Marty - 14222 - SSB at 0524. QSL to P O Box 2015, Apia Western Samoa, Pacific.

HK0TCN Vic - 14226 - SSB at 1327. QSL To: P O Box 464 St Andres Island, Caribbean.

4F3BAA Jun - 28021 - CW. QSL to Box SM217 Manila Philippines.

ZC4RF 14243 - SSB at 0600. QSL to G0IAS: A R Hickmann, Conifers, High St, Elkesley, Retford, Nottingham, Notts, DN 22 8AJ.

RTTY News

Here is some choice DX as supplied by Syd VK2SG.

A51JS - 14087 at 1339. QSL via VK9NS.

FM5WD 14086 at 2309.

FR5ZD - 14075 at 1333 ARQ.

KH8/SM7PKK - 14081 at 0605, QSL to: SM7PKK.

9X5/G0LIZ - 14085 at 16272. QSL via: Box 81, Kagale, Rwanda, Africa.

AP2NK - 14068 at 1159.QSL to: Nasir Hkhan, Box 1944, Islamabad 4400, Pakistan.

3X1SG - 14084 - at 2113. QSL to ON7GV.

V31HQ - 14094 - at 2055. QSL to DL1ZBP.

GJ4YMX - 14090 at 0001. QSL to : Box 437 St Helier, Jersey, CI.

From Here And There And Everywhere

Manfred Gronak Y21RO, will be in the cold literally for one year, starting in April. He will operate Y90ANT from the East German Antarctic Research Base "Georg Forster". Location : 70° 46' S, and 11° 51' E. Look out for him on CW : 3503-7003-14010-21010- and 28010. On SSB: 7045-1419-14290-21190-21290-and 28490. QSL to home address: Koellnische Str 22, Berlin 1190 GDR or via the Y2 QSL Bureau. .....VK2RZ reported that Rod 5Z4BH was active as J28TY at the end of February. His XYL is an Australian and they visit Sydney regularly each year .... Many DX-ers were shocked to hear that "Droshn" HK3HFQ became a silent key on the 3rd February after a short illness. He was well known on the 14MHz SSB band, both in the afternoons and late nights EST. He obtained his licence some years ago at the age of 70, and enjoyed every

minute of his hobby. His son John operates under the call HK6HFY ... VK5WO advises that PS7KM from Natal Brazil, told him that the Natal DX Group will be going to Trinidade Island off the Brazilian coast in the Atlantic Ocean. Location: 20° S and 30°W. It will be an 8 weeks operation between visits of the Brazilian Navy supply ship. They will be active on all bands incl 6 metres, on SSB and CW. This will be a good opportunity for the VKs to work this rare DX country. Further news as it comes to hand: callsigns, QSL info etc. The prefix 4U has been allocated to the United Nations. At this stage there are four calls in use: 4U1UN and 4U1WB in the USA, 4U1ITU in Switzerland, and 4U1VIC in Austria. All these are amateur club stations connected with various United Nations Agencies. Maybe it is not well known that any licensed amateur (you must have your original licence with your or a certified copy of the licence) whose country has subscribed to the charter of the UN, can operate from any of these Club stations with the permission of the respective officials. These Clubs usually do not QSL, but the operators do. Therefore, it is essential that you find out the individual operators call sign and the QSL route, otherwise it will be difficult to obtain a card. There was some activity from 4U1UN in February 1990. One of the operators was NA2K. If you worked 4U0UN, then please check your log again. You either made a mistake, or you worked a pirate. ....

VK2DID worked XE/AA7AF early in March. The operator was Ken, in Acapulco. Ken and some friends of his are in Acapulco fitting out a yacht, and they will sail it to the South Seas, South Pacific, then on to ZL and finally to Sydney. Departure time from Acapulco tentatively is in April..Enroute they will operate as AA7AF/MM on 21 MHz CW and 28 MHz CW. On nearing land, they will endeavour to use 6 m and 2 m. They would appreciate calls from anyone hearing their signals..... Walvis Bay: On the 19th of February the operator of ZS9/DK7PE was Rudi. QSL to his home address: Rudolf Klos, Kleine Untergasse 25, D-6501, Nieder Ulm, West Germany. ....S0 Western Sahara was very active in the second part of March. The Spanish Lynx DX Group has activated S01EA, - S04EA, - and S01LYNX. QSL to EA2JG. (address above). Expect to hear many more Taiwanese amateurs on the air. Shane BV2FA says, as reported by VK2LEE, that the Taiwanese authorities have issued 40 new calls recently. ZL7NAB Warren, works at the Radio Station on Chatham Island and he can be worked on 21MHz. He wants his QSL to be sent c/- Radio Station Chatham Island, New Zealand. During the CQ WW WPX (the "CQ" magazine sponsored World Wide World Prefix Contest) on the 24/25th of March, a number of exotic prefixes were flying around. CZ, XM, CI, CF were Canadians, TM France, PI for Holland, OG2AI was Eric OH2BBF, OH0AM was OH7JT, QSL to OH2QV. PJ9V was OH3VV, ZX5C was PY5CC, PT5T was N5FA and ZW5B was PY5EG. The proposed Southern Sudan - ST0 activity has been re-scheduled to mid or late April. John PA3CXC was in Southern Sudan for a few days in February, but the activity was very limited and restricted to the local evening hours on a local battery operated equipment running about 40 watts. The callsign to be used will be probably : PA3CXC/ST, instead of the planned 6U0DX. The estimated cost of the operation is around US $5000 - but as at the 9th of March a large proportion of that amount has not yet been donated. ZL0AKH and FO0XXL was Iris, W6QL from New Zealand and Tahiti. Iris and Lloyd W6KG ended their DXpedition and left for the States on the 29th March 1990. 3D2PO is Ian in Suva. He used to sign under the call: KX6PO. FW/YJ8M was Marek on Wallis Island. QSL to : Box 217 P O Port Vila Vanuatu. Pitcairn Island was first sighted on 2nd of July 1776 by a man named Pitcairn, and the island was named after him. Thanks to Irma, VR6ID. 3W5JA was JA7JPZ: M Sato 23 Tenzindo, Mikawa, Higa Shitagawa Yamagata, Japan. If you are interested in Middle East QSOs do not forget to check into the "Arabian Nights Net" on Fridays at 0500 UTC on 14250 kHz. JY5HH Mohamed is the net controller. On the 2nd of March the following stations were working DX: YK1AO, OD5AS, A61AC, 9K2YA, OD5HA, 9K2GM, A41JV and HZ1FM. Sometimes those who are beginners on DX-ing, or old-timers whose interest is again re-kindled in DX-ing, are asking the question : which are the usual DX bands, or rather band-segments? Here are some guidelines: In CW operation usually the very low end of the band e.g.: 28002 to 28025, 21002 to 21030, 14001 to 14035, 7002 to 7020 and 3501 to 3510. In SSB:28400 to 28550 but more around 28480. 21180 to 21210, 21275 to 21310, 14150 to 14210 but mainly around 14180 to 14205,.14250 to 14300, 7060 to 7095 and 3794 to 3800. There are also nets lasting from 1 to 2 hours at various frequencies on the band, which appear regularly at a certain time on certain days. Please avoid them, unless you want to participate. So, if you wish to have a long leisurely "rag chew" with your friend across the town or across the ocean, please try to avoid these band segments. The best spot for ragchewing is the lower end and the upper end of the SSB band segment. Yes I know, there are no reserved frequencies, and we all have the right to be at any part of the band, provided we act within the terms of our licence, which also implies that we will not QRM the station which is already on that frequency. Please be considerate to your fellow amateur, and please listen for a minute or so before you ask the courtesy question : "Is this frequency occupied?"

Interesting QSL's received:

Direct QSLs AP2IN 23 days, .TI100D 2 months, BZ1FB 3 weeks from Mgr, V29OA 3 weeks from Mgr. TT8GA 4 weeks from Mgr. VP2V/KG6WI 8 weeks from Mgrs. OD5KB 3 months from op. VP2VE 4 weeks from Mgr. VK2GDD 7 weeks from Mgr. FO0IGS 6 weeks from Mgr. XT2KG 10 weeks from Mgr. Via the Bureau: JT1KAA 4 months.

Thanks To You

To all of you who sent further letters, notes of encouragement - many thanks. If you want a written reply, please always enclose a self-addressed stamped envelope when you are enquiring about QSL addresses, or sending in QSL/QSO reports. I would like to stress again, when sending reports, it is very important that you indicate mode (CW,SSB) full frequency in kHz. (eg : 21215) and time in UTC. A description of say : 20-15 m is not usable. Why? All amateurs are creatures of habit and they usually operate in the same time slot each day, and on their "favourite" frequencies. This is why full information is necessary, so that you can find the DX easier on the bands.

And again, many thanks for the assistance received from : HK6HFY, VK4OD, VK2LEE, VK2CWS, VK2QL, VK2DID, VK2RZ, VK3XB, VK3KS, VK5WO, VK2SG, VK3DD, VK2APD, VK4UA, ZL2VS, VK3VOS, OH2BN, and the bulletins "QRZ DX" and "The DX bulletin".

GOOD DX AND 73.

RADIO AUSTRALIA RELAY PLAN

A relay station might be set up in Thailand for Radio Australia so it can better serve north Asia. The Australian Broadcasting Corporation's overseas service does not have a station offshore unlike those of other national broadcasters including the BBC and VOA.

Radio Australia General Manager, and former career diplomat with postings in the Asian region, Richard Broinowski met recently with Thai Government officials to discuss the possibility of setting up a relay station. Mr Broinowski said after the meeting the low quality of Radio Australia's signal in Asia was a national disgrace. A seven month review of Radio Australia's operations last year found that the service's transmitters had inadequate capacity, reliability and range. It was hoped to place up to two 500 kilowatt transmitters in Thailand at a cost of $20 million to relay Radio Australia.

VHF/UHF AN EXPANDING WORLD

ERIC JAMIESON VK5LP
9 WEST TERRACE MENINGIE 5264

The Beacon List

As is usual for May, only alterations to the beacon list are published. First, correct the call sign of JA6ZIH on 50.017 to JA6YBR. The beacon apparently has three different message styles and varies power between 50 watts and 0.1 watts.

I have been thrown into utter confusion after reading the list of beacons in February 1990 AR! It would seem to me that the call signs and frequencies listed are for those allocated to the various States, but there is no indication which beacons are operational. For beacons which are operational, it may be better to use my listings in AR and even these may be subject to some inaccuracies.

Six Metres

From the VK5 viewpoint, the March DX openings have been disappointing, and nothing like that hoped for following the experiences of March 1989.

However, there certainly have been many good catches in the Eastern States. John VK4ZJB, amongst others, has been doing rather well. John reports as follows: 12/3: 0255 V73AQ, 0315 3D2PO, 0345 V63AO; 15/3: 0405 T20AA; 17/3: 1143 HL5BBK 5x9; 18/3 0A8ABT called VK4KU on CW; 19/3: 0020 HK1JXV (LK20 square) (Columbia) 5x9, 0A8ABT (Peru), TI (Costa Rica) also 5x9. At 1000 VK4ZJB had a 5x9 contact with V73AQ and at 1058 JD1BFI on Ogasakawi; 22/3: 2055 V31PC, 2153 FO5DR, 2247 N6AMG/KH8; 23/3: at 0705 VK4ZJB observed KH6JEB/KH8 and VK9LE in contact with one another; 24/3: 0120 HL1ST, 0130 ZK1WL, 0615 KH6JEB/KH7 (Kure Is), 0650 NI6E/KH6, 0705 WA6EMV/KH6, 2120 6Y5FS, 2127 HH7PV, 2130 6Y5IC, 2150 N6AMG/KH8, 2200 ZK1WL. (Seven countries in one day — good effort.) 25/3: 2321 N6AMG/KH8; 26/3 0140 N6XQ, 0215 V73AQ. Later W6JKV/FW and V31PC — this brings John's country tally to 62 worked and 56 confirmed. Good work John — that's the highest score I have heard so far.

John VK4ZJB further advises the receipt of his SSB verification from VE3KKL for the 5x5 contact both ways at 0016 on 27/2/90. That's rather a notable contact. John also received a listener's report of 5x2 from DC6KI from the Federal Republic of Germany, who heard John working PA0RDY on 12/10/89.

Eddie VK4KAA from Longreach in square QG26 advises a return to six metre activity after a break of more than four years, and has worked KH8, KH7, T20, V73, FO8, FK8, KH6 and many JAs. In addition he has been able to work Townsville on backscatter. He also reports their VK4ABP beacon, running 15 watts to a groundplane antenna, is heard well throughout the Pacific area.

Graham VK6RO sends a brief report on the opening to Europe on 28/2 when between 0914 and 1055 he worked PA, GI8 and G. He was also called by GW and GJ but no contacts completed. Don VK6HK worked a GM in Scotland during the opening. Has anyone else worked a GM?

From the South Australian viewpoint Hugh VK5BC in the Riverland reports on 22/3 working KG6DX and hearing the H44HIR beacon. On 24/3 at 2143 he worked N6AMG/KH8 at 5x9, 2210 T20AA and 0247 KG6DX 5x9. The best day was 25/3 when he worked N6AMG/KH8, ZK1WL, ZF1RC, VK9LE and VK9ZLX at 0024, HL1ST, HL1IFF, W6JKV/FW (Wallis Island) and then JAs. On 2/4 Hugh nearly made it to 5W1JP. At 0005 he worked JR6KJL who mentioned he had been hearing 9H1 (Malta) about half an hour earlier.

Roger VK5NY on 25/3 at 2343 worked ZF1RC at the odd angle of 30 degrees which seemed to indicate some scatter effect was involved, he then worked ZK1WL and HL1ST. On 26/3 it was V73AQ.

At Meningie, I noted JAs on 3/3/ 5/3, 6/3 and 9/3 this being the best day. They were working VK2,3,4 and 5 with signals to S9 plus. Some were heard calling LU during the morning. At 0200 video was strong on 49.750. On 20/3 from 0000 there were strong FM signals, paging signals, a news service in English from China on 44.5 (probably a shortwave station harmonic) and many others, in fact there were 23 signals between 38.5 and 45.6 MHz, but they were gone soon after 0100, at which time the JAs came in again. On 24/3 there were 14 stations between 38.5 and 46 MHz with the Chinese harmonic very strong. Often there is a strong tone signal on 43.9 MHz when nothing else is apparent.

The UTC morning of 2/4 was better than usual. John VK4ZJB phoned to say W6JKV/FW and 5W1JP were making it to Melbourne and the signals may reach South Australia, which they did with Hugh VK5BC working W6JKV/FW, T20AA, 5W1JP and at 2318 V31PC. All four stations were audible at Meningie but too weak to work — it wasn't my morning! Col VK5RO earlier at 2200 worked K6MYC at 339, also 5W1JP.

Neville VK2QF also reports poorer than expected conditions with his main contacts being to KH6JEB/KH7 and V31PC on 23/3 and a P32 on Christmas Island on 31/3. David VK2BA was a little more fortunate and on 25/3 chalked up 6Y5, HI8, HH7PV, V31PC and ZF1RC.

My friend of long standing, Robert VK2BBR, writes that he has worked the UK on six metres and two contacts so far have been confirmed, namely G3OIL and G3JVL. On 24/3 Robert worked at 0119 HL1ST, 0125 ZK1WL, 0643 NI6E/KH6. On 25/3 he worked at 2128 6Y5FS, 2133 ZF1RC, 2135 HH7PV, 2138 N6AMG/KH8, 2241 6Y5IC, 2250 ZK1WL, 0711 KH6SB, 0720 KH6RS and 0741 KH6JEB/KH7 — that's six countries making a good effort. I wonder if Robert worked all these stations with the antenna in the same general direction? If so, the 6Y5 stations would surely be by the long path. Robert hopes to erect his second six metre yagi very shortly and looking for improved results.

As has often been discussed in South Australia, those amateurs living in latitudes nearer the equator than we do, have more consistent paths of activity over long distances than we can ever hope to share in. We certainly do get some good contacts, but the time between is often considerable. Perhaps I should move to Byron Bay!

DX-Peditions

Reports filtering back from the Pacific appear to indicate Steve VK9LE (VK3OT) and Peter VK9ZLX (VK8ZLX) have not exactly been flooded with contacts. No doubt we shall hear more as time progresses but if that is so it is most unfortunate as one would have had reason to expect a rather good autumn period for our hemisphere. It will be ironic if Joel N6AMG has better conditions after joining the party early in April for a week or so.

A report from Japan indicates that a YL six metre operator will tour the Pacific areas between March and December, with about 13 island nations on her stopping list. This expedition may provide some of those elusive areas I need, such as 5W1 and ZK3. More information later, but keep listening.

From QST and World Above 50 MHz, N4HSM reports having 774 contacts in 35 countries from his November 1989 DXpedition to St Kitts. While most contacts were to the USA, there were 44 to VE, 11 Caribbeans, 3 South Americans, 3 Africans and 241 Europeans.

From the same source, a group of Japanese operators worked 1155 stations from XV2A in Vietnam between 23/12 and 28/12/89. They left the Icom IC-726 and two element Yagi there, in the hope it may be operated by some Vietnamese.

Europe

Again from QST, Bill Tynan reports that G4UPS in his notes says more European countries are obtaining six metre privileges. Belgium is now allowed 30 watts between 50.0 and 50.45 MHz with ON4PS being the first Belgian station to receive a six metre permit. Three Swiss stations, HB9XAJ, HB9CRQ and HB9QQ are authorised to oper-

ate. In the case of Denmark and the Faroe Islands, all licence classes of OZ and OY have been granted 50 to 52 MHz with powers of 100-500 watts with no antenna restrictions but operating on a non-interference basis. I previously reported on the Austrian stations.

The French situation is clarified in the same columns via the Northeast VHF News that 252 French stations are holding permits commencing from 50.200 MHz. They all have distinctive prefixes such as FC, FD or FE. In addition there appear to be 100 experimental stations limited to specific segments of 50.086 to 50.089, 50.111 to 50.114 and 50.135 to 50.139 MHz.

The Solar Peak

Bill Tynan in his QST notes also says that the January/February SWOT Bulletin includes KH6BZFs propagation report which quotes Dr Andre Koeckelenbergh, Director of the SIDC Royal Observatory in Belgium as stating that the peak of Sunspot Cycle 22 may have occurred in September 1989. There is, however, other speculation that the peak may have been in November. Due to the method used to determine average solar activity, the time of the peak will not be known until six months after it has occurred.

However, despite what seems for some people a fall-off in contacts so far this equinox, April may be better. Also, following past experiences, we most likely can expect a variety of good contacts for at least another three years.

Higher Than 50 MHz

With most activity presently situated on six metres one could be forgiven for thinking all other bands have closed down. This is not the case. Thanks to considerable help from David VK5KK, Keith VK5AKM and on another occasion Mark VK5AVQ, the antenna system at VK5LP has once again been improved. The missing half element was refitted to the six metre beam, a new K1FO type 22 element yagi has replaced the original 16 element KLM on 70 cm and a new 27 element loop yagi (made by Des VK5ZO) installed for 23 cm. This antenna is assisted by a masthead pre-amplifier and a length of one inch heliax cable.

Throughout the week commencing 25/3 extensive testing over the 160 km path to Wasleys (the home of Keith VK5AKM) showed all was working well. An attempt with Trevor VK5NC at Mount Gambier failed to produce a 1296 MHz contact due to poor conditions associated with the hot weather. However, on 1/4 Wally VK6WG from Albany sent out a CQ call on 70 cm around 0130 and was answered by David VK5KK who was at the Wasleys residence. David followed this with a 1296 MHz contact to Wally. A phone call brought me on the band and I worked Wally on 70 cm but my 1 watt on 1296 MHz was insufficient to make it both ways but Wally was 5x1 at Meningie. It seems I will need to unpack my 100 watt 1296 MHz linear for better results! Col VK5RO also worked VK6WG and VK6YAU on 70 cm.

Contests

The Federal Contest Manager's report on VHF/UHF contests as published on pages 27 and 28 of April AR makes depressing reading. It seems the amateur fraternity is unable to adequately support such contests, despite many attempts by a number of people to promote them. Thus it seems there is little hope of saving the Ross Hull Memorial Contest or the later inaugurated VHF/UHF Field Day Contest.

Without going into a great discourse on the pros and cons of such contests, suffice to say that it would appear one of the main reasons for their demise is the vastness of our country, and therefore the difficulty of providing scoring tables which are equally satisfactory and fair for operators in the eastern States and those with smaller populations in the more remote regions such as VK6 and VK8 and possibly VK5. If the VHF and UHF bands had the same sustainable operating characteristics as are enjoyed on the HF bands rather than often relying almost solely on the vagaries of enhanced propagation for contacts over considerable distances, then such contests may have continued.

Mount Gambier Convention

In case you missed the item on page 49 of April AR, the South East Radio Group Inc will hold their annual convention at Mount Gambier over the Queen's Holiday weekend of 9 and 10 June. No doubt there will be the usual rivalry between the VK5 and VK3 amateurs, but all this leads to an enjoyable weekend. Why not attend?

Closure

As I await the signals to appear on six metres, I will close these notes with two thoughts for the month: "When science finishes getting man up to the moon and beyond, maybe it can have another try at getting pigeons down from public buildings" and "The barbarism of our time is the more appalling because so many people are not really appalled by it."

73 from The Voice by the Lake

POUNDING BRASS

GILBERT GRIFFITH VK3CQ
7 CHURCH ST BRIGHT 3741

My much publicised Howes kits transceiver finally made it to air in March, and what was Peter VK2PA using? The same set of kits he had just finished assembling himself! I could only give him RST259 but he gave me 559, but there was a lot of QRN about at the time, and the SEC has still not fixed the noisy poles near my home, (they were reported by the RI over 5 years ago!). A third contact a few days later was with Marlene VK3FML who, although not using it at the time, said she had the Howes transmitter kit sitting amongst the junk on the bench. Marlene also said that a couple of her friends had worked Peter and like the cut of his kits too. It certainly is a small world in CW, my only previous contact was back in November with Bill ZL4QY... so I have been out of touch for a while, the effect of which was my receiving speed was down to about 15 wpm, so I was having more than a little trouble copying Pete, especially with no AGC on the rig. Sending has not suffered much with the layoff, thank goodness. I am not sure whether the new Kent paddle was the cause, but sending was easy and didn't require a lot of thought, as the paddle seemed to drive itself with exactly the words I wanted to send.

Stewart Electronics sent me the Kent paddle to try out, instead of the Bencher I ordered, and it is a joy to use. I will be keeping it for sure. It features a heavy steel base which is coated in black plastic, with a large brass block holding two sets of bearing races which support the paddles. Tension is achieved with two separate springs and their adjusting nuts so you can set it up however you like. Mine came in kit form and took about 20 minutes to assemble, it should prove no problem for anyone to assemble, and you will then be confident in setting it up to suit your individual taste.

In regard to setting up the transceiver, this is something it pays to think about, how about sending me details of how you have set your kits out to make a transceiver? At this stage I have used an antenna relay operated by a switch for TX/RX. The separate VFO's RIT is disabled, and the transmitter power is enabled via the same switch. A separate switch disables the RIT for netting with the TX off. Another switch disables the (external) VFO entirely, while yet another switch controls whether the external VFO or the RX board's VFO drives the receiver. The next switch gives either narrow or not-so-narrow audio filtering. The power switch gives either OFF, Batt, or external power. The internal 1.2AH, 12V gel battery should give at least an evening of use before recharging, which is automatic whenever the external power is connected. All this fits, not very nicely, in a cabinet 100H by 300W by 150D, and there is

still room for a keyer board and a QSK board if desired.

You will remember that last month I suggested an idea to further our favourite mode, and I have received a letter from Bob, VK2YRX who is looking for a Curtis chip, board and circuit. If you have one, his number is (02)-813300, and Bob you can also get the chip (8044B or 8044ABM) from Curtis Electro Devices Inc Box 4090, Mountain View, CA 94040, using a Visa card to order.

Bob also says "I wonder if your readers might like the use of a 24 hour Morse practice station on 80 metres? There is one such station, VK2RCW, on about 3.698 MHz (and 144.950 MHz) which is operated by the Hornsby and District Radio Club. The contact person and station "sysop" is Barry, VK2AAB. I am not sure of the station's present output power, but it probably wouldn't exceed 20-30 watts and is more likely to be in the region of about 10 watts to the antenna. It sends at about 12wpm, and it simply outputs the contents of a local packet radio bulletin board, but in somewhat edited form. It is also intended as a CW beacon. It is readable from almost anywhere in Australia on a mobile helical whip fitted to the front of my vehicle...."

Morsum Magnificat Important Information.

New Address: Morsum Magnificat
8A Corfe View Road
Corfe Mullen,
Wimborne,
Dorset BH21 3LZ
England.

Rates: Surface....US$14, Airmail....US$17.

Now payable by Access/Eurocard/Mastercard or Visa.

Cheques should be payable to "GC Arnold Partners."

I have been informed that there is not a lot of support for Morsum Magnificat from Australia, so how about it Morsiacs.

More on American Morse from Duane, VK2VE.

"The 'American Morse' is actually the old railway morse, which surprisingly enough will still be used, not for telegraphic messages, but between the railway train dispatchers and the railway station operators at single man stations. The station operators were train message handlers, ticket sellers etc etc. The railway morse is sent using bugs and sounders, a quite distinct sound system, actually faster to recognise than international tone morse...All my techs had to know the railway morse so we could communicate when no phone circuits were available. Try as I might, I could not get used to the different morse characters, so I always sent international and received railway morse; my troops got used to me, after all I was the boss!! A lot of the troops, and the railway operators, generally passed messages at a rate of 45 to 50 wpm! True!! They had to drop to about 25 wpm for the boss!.."

'till next month....Gil

ELECTRO-MAGNETIC COMPATIBILITY REPORT

HANS RUCKERT VK2AOU EMC-REPORTER
25 BERRILLE RD BEVERLY HILLS 2209

A number of phone calls were recently received from amateurs who had EMC-problems with electronic appliances of their neighbours. I recommended in September 1986 "AR" page 53, that amateurs should keep the EMC-Reports in a folder, in order that they can be consulted when EMC collisions arise. We never know, when a neighbour (or we too) may purchase an appliance, which may be disturbed by our transmitter signal. With so many EMC-Reports published in "AR" in recent years (see "AR" February 1989 : EMC-Report list, and later) there is a good chance that the OM with an EMC-Problem will find the answer/remedy to his or her neighbours' problem.

Step 1) Keep the "AR"EMC-Reports for reference.

Step 2) In any case get your own set-up in order first.

This step will teach you what is required to cure your TV-set, VCR and/or Hi-Fi gear. We can now demonstrate to our neighbour (and to the Radio Inspector) what is wrong with the design of his/her appliance, and what will have to be done to avoid the TV, VCR and Hi-Fi appliances being also receivers of unwanted signals from other legal transmitter services.

Proposed methods:

a) Earth the braid of the TV feeder coaxial cable close to the TV-set, and earth any metal case of the appliance (if available). It is unfortunate that the two 470 pF capacitors separate the feeder braid from the TV chassis, which reduces the immunity by about 20 dB.

b) Our house can be considered as a wire cage of mains wires, connected to the outside mains supply wires, which go along the street, and to the appliances inside the house. The outside mains wires pick up RF from our antennas, being often at a similar height, and often running parallel to the antenna dipoles. Now the unwanted RF is distributed via the mains wires (of the cage) to any appliance connected to the 240V mains, causing overloading of the amplifiers' frontend and so generating harmonics.

c) A low-pass filter at the transmitter antenna terminal may not be enough, if the power supply cable of the transmitter is not free of RF. A ferrite (low Q, high permeability) choke core (ex TV line oscillator ferrite core) and 10 or more cable turns of the power supply mains cable are usually effective.

d) An omnidirectional vertical antenna near a community roof TV-antenna of a home-unit, using a flat response TV mast-head preamplifier (5...900 MHz) is of course asking for trouble. The radio amateur should use a highly directional beam antenna as high as, and as far away as possible from the TV antenna. Unselective preamplifiers should be illegal (as in Germany).

e) DL6DBC (Dortmund) was surprised when recently a PMG EMC-Test minibus stopped at his place. The Radio Inspector stated that the masthead preamplifier at the TV community antenna, which was approved years ago, no longer meets the present immunity requirements and has to be replaced by a more channel selective unit. The RI will come again when the new amplifier has been installed to test the effectiveness. One pays for the TV licence in Germany, and gets in return effective service – protecting the radio amateur – from the post office. See also "AR" June 1987 page 58-59.

f) There is a drawing error (not by me) "AR" December 1987 page 50 on the circuit of the "Effective High-Pass Filter". The 22 pF capacitor should be a 220 pF capacitor, as on the left half of the circuit. The most effective place to install the filter is by attaching the filter case to the lid of the TV-tuner. Unselective amplifiers can be improved by following them with this high-pass filter.

g) A number of useful ways to solve EMC problems will be found in "AR" September 1988 page 46-47.

h) The 2nd International Congress on EMC and a technical exhibition was held at Karlsruhe (Germany) from the 13th to 15th of March 1990. The DARC EMC-Reporter DJ1ZC was attending the conference. EMC has become an EEC and beyond problem.

i) Cable-TV operation on the exclusive radio amateur 2m band has become a major problem in over 200 West-German towns ("CQ-DL" 3/1990, page 172). The branch cables and coaxial connectors near the customers house are not as RF tight as claimed by the TV-cable companies, causing interference to the 144-148 MHz reception of radio amateurs. These installations are, in return, also often disturbed by legal 2m amateur radio transmissions picked up by insufficiently shielded cable installations. The Americans already had this problem many years ago - and still experience it now. So far (2.2.1990) 2449 interference reports have been received by the DARC administration. 1990 reports were received from 2m mobile stations.

j) the inadequate shielding of VCRs and the resulting lack of immunity to unwanted but legal transmissions, was dealt with in "AR"

June 1988. The wideband high gain amplifiers of VCRs are operating on the 3.5..4 and 7..7.3 MHz amateur bands, requiring effective shielding, which is often missing. The EMC report of September 1988 "AR" describes on page 47-48 the often only effective cure of the VCRs susceptibility. One has to place the VCR in a metal box which is open at the front (front tape loader), with enough room for cooling air circulation, and a row of 6-10 mm diameter holes for ventilation should be provided near the bottom and the top. All in and out-going cables should be wound on ferrite core chokes (10 or more turns) near the shielding box. It may be necessary to attach a high-pass filter to the VCR antenna terminal.

k) It was reported that, in locations near radio – or TV transmitters, digital telephones had to be replaced by older models to avoid disturbances by the transmitter RF radiation. One would expect that telephone designers would check the apparatus prior to installation for RF immunity (EMC).

AMSAT AUSTRALIA

Maurie Hooper VK5EA
11 Richland Road Newton SA 5074

Satellite Activity For December 1989/January 1990

1. Launches

The following launching announcements have been received:

Int'l No	Satellite	Date	Nation	Period min	Apg km	Prg km	Inc deg
1989 —							
100A	COSMOS 2053	Dec 27	USSR	95.2	548	527	73.6
101A	COSMOS 2054	Dec 27	USSR	24h29m	36436	1.5	
1990 —							
001A	SKYNET 4A	Jan 01	UK	1382.5	33782	33685	3.4
001B	JCSAT 2	Jan 01	Japan	180.1	7191	821	0.3
002A	STS 32	Jan 09	USA	90.8	342	316	24.4
002B	LEASAT 5	Jan 09	USA	1427.1	36363	34858	1.4
003A	COSMOS 2055	Jan 17	USSR	89.6	280	251	62.8
004A	COSMOS 2056	Jan 18	USSR	100.8	819	779	74.0
005A	SPOT 2	Jan 22	ESA	100.9	831	802	98.7
005B	UOSAT-D	Jan 22	Amateur Satellites with initial parameters:-				
005C	UOSAT-E	Jan 22					
005D	MICROSAT 1	Jan 22					
005E	MICROSAT 2	Jan 22					
005F	MICROSAT 3	Jan 22		100.8	821	791	98.7
005G	MICROSAT 4	Jan 22					
006A	MOLNIYA-3	Jan 23	USSR	11h41m	38892	642	63.0
007A	MUSES-A	Jan 24	Japan	400.6h	538870	208	30.7

2. Returns

During the December period twenty six objects decayed and in the January period sixty five objects decayed including the following satellites: -

1965-021A	OPS 7353	Dec 31
1988-101A	COSMOS 1979	Dec 25
1965-112A	COSMOS 103	Jan 02
1984-034B	LDEF	Jan 20
1989-095A	COSMOS 2052	Jan 24
1990-002A	STS 32	Jan 20

Notes

The amateur satellites of the 1990-005 series were launched with SPOT 2 as the primary payload from the Kourou Space Centre, French Guiana.

After launch the satellites were named:-

1990-005B	UOSAT 14
1990-005D	OSCAR 16
1990-005F	WEBERSAT 19
1990-005C	UOSAT 15
1990-005E	DOVE 17
1990-005G	LUSAT 19

1990-007A MUSES-A was launched from Kagoshima, Japan. The purpose of the mission is to verify the swingby technology of modulating the course and speed of the probe by utilizing the gravity of the moon, and to deploy a subsatellite (weight 13 kg) into moon orbit.

Bob Arnold VK3ZBB

National Co-ordinator
Graham Ratcliff VK5AGR

Information Nets

AMSAT Australia

Control:	VK5AGR
Amateur check in:	0945 UTC Sunday
Bulletin commences:	1000 UTC
Primary frequency:	3.685 MHz
Secondary frequency:	7.064 MHz

AMSAT SW Pacific
2200 UTC Saturday, 14.282 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included on some WIA Divisional Broadcasts.

AMSAT Australia Newsletter And Computer Software

The excellent AMSAT Australia Newsletter is published monthly by Graham VK5AGR on behalf of AMSAT Australia and now has over 270 subscribers. Should you also wish to subscribe, send a cheque for $20 payable to AMSAT Australia addressed as follows:

AMSAT Australia, GPO Box 2141, Adelaide 5001.

The Newsletter provides the latest news items on all satellite activities and is a "must" for all those seriously interested in amateur satellites. Graham also provides a Software Service in respect to general satellite programs made available to him from various sources. To make use of this service, send Graham a blank formatted disk and a nominal donation of $10 per item to AMSAT Australia together with sufficient funds to cover return postage. To obtain details of the programs available and other AMSAT Australia services send a SASE to Graham.

Operating Hints Updated To Include Pacsat And Lusat

FO-20 (PACSAT-1 & LUSAT-1) Operating Hints — Freddy ON6UG via FO-20 BBS

a) Use shortest TXDELAY as possible (ie 30ms = T3).
b) Do not use MAXFRAME greater than 2.
c) Don't forget to switch the TNC to

FULLDUPLEX.

d) Disconnect BEFORE LOS to empty the user list.
e) Make your contact as short as possible to give others a chance. (Do you really have to be connected from AOS until LOS??)
f) Kill all your read messages!
g) Watch 70 cm clicks and QRM from your transmitter.
h) Change transmit frequency for doppler (± 2kHz).

Don't forget to switch back to HALF-DUPLEX for terrestrial usage!!

Which UPLINK frequency?

HB9AQZ suggests the following system for selecting an uplink frequency — take the last letter from your callsign and select:

	FO-20	LUSAT-1	PACSAT-1
A...G->	145.850	145.840	145.900 MHz
H...M->	145.870	145.860	145.920 MHz
N...T->	145.890	145.880	145.940 MHz
U...Z->	145.910	145.900	145.960 MHz

Of course if you hear someone else in your local area using a particular frequency then I suggest you try another ie VK5ZTS and VK5AGR using the above system on FO-20 would both be trying to use 145.890 with VK5ZWA on 145.850 and VK5ZK on 145.910 therefore either VK5ZTS or VK5AGR should switch to the unused frequency of 145.870 to minimise interference to each other.

Packet On Fuji-Oscar-20

A Typical Session of Fuji-Oscar-20's Mailbox — Graham VK5AGR

By way of explanation — all the text appended by <Enter> below is what I typed on my keyboard — the remainder is what I received from FO-20. The second to last frame is a typical FO-20 telemetry frame which consists of 27 (00 to 26) analogue telemetry channels with values from 000 to 999, 9 system status channels (27a to 29c) with hex values of 0 to F and 30 status points (30a to 39c) with values of binary 0 or 1. Data on decoding this information is available in the AMSAT-UK FUJI-OSCAR-12 Handbook which are currently available from AMSAT-Australia for a $15 donation (only 3 left) but they are also available from AMSAT-UK.

Connect 8J1JBS <Enter>
***Connected to 8J1JBS
FO-20/JAS1b Mailbox ver. 2.00
commands {B/F/H/M/R/U/W}
Use H command for Help
JAS>
H <Enter>
++ Available commands ++

B: List file headers addressed to ALL
F: List latest 15 file headers
F*: List latest 50 file headers
F<d>: List file headers posted on day <d>
H: Show this message
K<n>: Kill a file numbered <n>
M: List file headers addressed to current user
R<n>: Read a file numbered <n>
U: List current user (s)
W: Write a file

JAS>
M <Enter>

NO	DATE	UTC	FROM	TO	SUBJECT
0196	03/02	21:41	ON6UG	VK5AGR	Tnx info

JAS>
R196 <Enter>

NO	DATE	UTC	FROM	TO	SUBJECT
0196	03/02	21:41	ON6UG	VK5AGR	Tnx info.

Hello Graham, I have put your info in the file, if it is not correct please let me know. Do you have enough fingers to operate all those digital satellites?
73's Freddy
JAS>
K196 <Enter>
Killed!
JAS>
W <Enter>
TO? ON6UG <Enter>
SUBJECT? Reply <Enter>
Enter text, <CR>. <CR> to end.
Freddy, OK on the info in the file. <Enter>
No — I do not have enough fingers <Enter>
to work all the digital satellites but have <Enter>

```
                    OSCAR-13 Schedule for 01May90 to 10Jun90
                              Station: Adelaide
                                  Hour - UTC
-----0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
01May-------------------------------bbbbbbbbBBBBB---------------------bbb---
02May-----------------------------bbbbbbbbBBBBBBBB-----------------bb-------
03May---------------------------bbbbbbbbBBBBBBBBBB-----------------------
04May-----------------------bbbbbbbbBBBBBBBBBBBB-----------------------
05May-------------------bbbbbbbbbBBBBBBBBBBBB-----------------------------
06May-----------------bbbbbbbbBBBBBBBBBBBBB-----------------------------
07May-------------bbbbbbbbbBBBBBBBBBBBBB-----------------------------------
08May----------bbbb-----------------------------------------------------
09May------bbb-----------------------------------------------------------
10May---bb-----------------------------------bbbbbB---------------------b
11Mayb-----------------------------------bbbbbbBBBB-----------------bb--
12May-----------------------------------bbbbbbBBBBBBB-----------------bb------
13May---------------------------bbbbbbBBBBBBBBBL-----------------bb---------
14May-----------------------bbbbbbBBBBBBBBBLLL-----------------------------
15May---------------------bbbbbbbbBBBBBBBBLLLLB-----------------------------
16May-----------------bbbbbbBBBBBBBBLLLLSBB-----------------------------
17May---------------bbbbbbBBBBBBBBLLLLSBB-----------------------------------
18May-----------bbbbbbbBBBBBBBBLLLLB-----------------------------------------
19May--------bbbb--------------------------------------------------------
20May----bbb-------------------------------------------------------------
21Maybbb-----------------------------------bbbbbB-----------------------bb-
22May-----------------------------------bbbbbbBBBB-----------------bbb----
23May-----------------------------bbbbbbbBBBBBB-----------------bb--------
24May-----------------------bbbbbbBBBBBBBBBL-----------------bbb----------
25May-----------------------bbbbbbBBBBBBBBLLL---------------b--------------
26May-------------------bbbbbbbBBBBBBBBLLLLS-----------------------------
27May----------------bbbbbbBBBBBBBBBLLLLSB-----------------------------
28May-------------bbbbbbbBBBBBBBBLLLLBB-----------------------------
29May----------bbbbbbbBBBBBBBBLLLLSB-----------------------------------
30May------bbbb----------------------------------------------------------
31May--bb----------------------------------------------------------------bb
01Jun-----------------------------------bbbbb-----------------------bb---
02Jun-----------------------------bbbbbbBBB-----------------bb-------
03Jun---------------------------bbbbbbBBBBBB-----------------bb---------
04Jun-----------------------bbbbbbBBBBBBBB-----------------bb----------
05Jun-------------------bbbbbbbBBBBBBBLLL---------------bb----------
06Jun-----------------bbbbbbBBBBBBBBLLLLS-----------------------------
07Jun-------------bbbbbbBBBBBBBBLLLLBB-----------------------------
08Jun----------bbbbbbBBBBBBBBLLLLSBB-----------------------------------
09Jun-------bbbbbbBBBBBBBBLLLLS-----------------------------------------
10Jun---bbbb-------------------------------------------------------------

LEGEND:

b : AO-13 is in view and the Mode B transponder is ON (Omnidirectional antennas)
B : AO-13 is in view and the Mode B transponder is ON (High Gain antennas)
L : AO-13 is in view and the Mode JL transponders are ON
S : AO-13 is in view and the Mode S transponders is ON
- : AO-13 is NOT in view

Please note the AO-13 transponder schedule given below as the resolution of the
barchart does not totally indicate all the options due to the rather complex
nature of the Mode-S transponder operations in conjunction with either the
Mode-L or Mode-B transponders.

AMSAT-OSCAR-13 Transponder Schedule from 09May90

Mode-B  : MA 000 to MA 110 ! Note:- from 07May90 until magnetorque
Mode-JL : MA 110 to MA 135 ! of AO-13 to LON/LAT of 180/0 has been
Mode-LS : MA 135 to MA 140 ! completed ALL transponders will be
Mode-S  : MA 140 to MA 145 ! OFF from MA 200 through perigee to
Mode-BS : MA 145 to MA 150 ! MA 060. The next eclipses affecting
Mode-B  : MA 150 to MA 256 ! AO-13 begin on 11Jul90.
Omnis   : MA 215 to MA 045 !
```

been using the digipeaters on PASCAT-1 and LUSAT-1 <Enter>
. <Enter>
End
JAS>
F <Enter>

NO	DATE	UTC	FROM	TO	SUBJECT
0207	03/03	00:30	VK5AGR	IOLYL	Reply
0206	03/03	00:26	VK5AGR	ON6UG	Reply
0205	03/02	23:59	JR1EDE	DL1CF	Hello Heinz
0204	03/02	23:53	AL7IH	IK1COA	my setup
0203	03/02	23:51	AL7IH	ON6UG	info
0202	03/02	22:37	ZL1WN	N5BF	microsats
0201	03/02	22:00	AL7IH	ON6UG	setup
0199	03/02	21:44	DL1CR	DL1CF	auch da
0198	03/02	21:44	I6CGE	IK1COA	SALUTI
0195	03/02	21:40	ON6UG	HB9AQZ	Mode S
0194	03/02	21:39	ON6UG	ALL	JD-USERS (2)
0193	03/02	21:38	IK1COA	G2BFO	Hello Devidde Alfred

JAS>
cmd: DISCONNECT <Enter>
***DISCONNECTED: 8J1JBS
8J1JBS*>BEACON:
JAS1b RA 90/03/03 00:38:58
712 376 673 679 728 837 846 830471 651
618 001 491 512 513 510 512 509655 001
699 680 700 695 999 644 877 17608A 000
110 111 000 000 111 100 001 111111 000
8J1JBS*>BEACON:
JAS1b MO 90/03/03 00:34:00

Mailbox is at your service from 90/03/01 12:00:00

The JD Transmitter is available in all orbits during JD mode. **ar**

Stolen Equipment

Stolen from G J Brown VK5ZGB 20 Lambert Ave, Holden Hill 5088 on 16 December 1989.

ICOM IC-02A 2m handheld Ser No 29906240, ICOM IC-044 70 cm handheld, ICOM HM46 speaker mic. Contact owner QTHR or local Police.

ar

KEPLERIAN ELEMENTS - THE "NASA 2-LINE FORMAT" EXPLAINED

This is the format used by NASA to distribute satellite elements in their "NASA Prediction Bulletin". The origin of the format is unknown. Some old NORAD reports refer to this as T-card format. NASA documents often call it the "2-line" format.

Each number is in a specified fixed column. Spaces are significant. The last digit on each line is a mod-10 check digit. Data for each satellite consists of three lines in the following format:

```
AAAAAAAAAAA
1 NNNNNU NNNNNAAA NNNNN.NNNNNNNN +.NNNNNNNN +NNNNN-N +NNNNN-N N NNNNN
2 NNNNN NNN.NNNN NNN.NNNN NNNNNNN NNN.NNNN NNN.NNNN NN.NNNNNNNNNNNN
```

Line 1 is a eleven-character name.

Line 2

Column	Description
01-01	Line Number of Element Data
03-07	Satellite Number
10-11	International Designator (Last two digits of launch year)
12-14	International Designator (Launch number of the year)
15-17	International Designator (Piece of launch)
19-20	Epoch Year (Last two digits of year)
21-32	Epoch (Julian Day and fractional portion of the day)
34-43	First Time Derivative of the Mean Motion divided by 2. or Ballistic Coefficient (Depending of ephemeris type)
45-52	Second Time Derivative of Mean Motion divided by 6. (Blank if N/A)
54-61	BSTAR drag term if GP4 general perturbation theory was used. Otherwise, radiation pressure coefficient.
63-63	Ephemeris type
65-68	Element number
69-69	Check Sum (Modulo 10) (Letters, blanks, periods = 0; minus sign = 1; plus sign = 2)

Line 3

Column	Description
01-01	Line Number of Element Data
03-07	Satellite Number
09-16	Inclination [Degrees]
18-25	Right Ascension of the Ascending Node [Degrees]
27-33	Eccentricity (decimal point assumed)
35-42	Argument of Perigee [Degrees]
44-51	Mean Anomaly [Degrees]
53-63	Mean Motion [Revs per day]
64-68	Revolution number at epoch [Revs]
69-69	Check Sum (Modulo 10)

All other columns are blank or fixed.

Note that the International Designator fields are usually blank, as issued in the NASA Prediction Bulletins.

The following set of elements was posted on the packet network by Graham VK5AGR on 25th March.

```
UO-11
1 14781U 84 21  B 90 80.60976102  .00001635  00000-0  31350-3 0  6339
2 14781  97.9615 135.9978 0012504 159.5868 200.5860 14.65023709323147
MIR
1 16609U 86 17  A 90 75.35661081 -.00084508  00000-0 -10421-2 0  4706
2 16609  51.6184  78.1725 0015148 279.7370  80.0397 15.59871900233609
RS-10/11
1 18129U 87 54  A 90 79.93062365  .00000222  00000-0  23389-3 0   742
2 18129  82.9277  33.7239 0012337  11.4575 348.6905 13.72068564137349
AO-13
1 19216U 88 51  B 90 76.23511618 -.00000102  00000-0  99999-4 0   815
2 19216  57.0320 164.1337 6913866 223.1742  55.0039  2.09702208 13447
UO-14
1 20437U 90  5  B 90 78.24586989  .00000498  00000-0  21448-3 0   348
2 20437  98.6996 154.6013 0012407  56.9858 303.2476 14.28516088  8028
UO-15
1 20438U 90  5  C 90 78.25456188  .00000230  00000-0  10823-3 0   302
2 20438  98.7040 154.6070 0011380  58.0678 302.1593 14.28292322  8025
AO-16
1 20439U 90  5  D 90 80.27336346  .00000433  00000-0  18842-3 0   305
2 20439  98.7127 156.6667 0012698  51.9222 308.3115 14.28617359  8317
DO-17
1 20440U 90  5  E 90 80.06189741  .00000466  00000-0  20175-3 0   217
2 20440  98.7134 156.4601 0012820  52.6944 307.5414 14.28653096  8286
WO-18
1 20441U 90  5  F 90 79.07690227  .00000425  00000-0  18473-3 0   193
2 20441  98.7101 155.4814 0013305  55.9153 304.3282 14.28761841  8144
```

AMATEUR RADIO HELPING OUR COMMUNITY.

EDUCATION NOTES

Brenda Edmonds VK3KT
Education Coordinator

The devolvement saga continues. Many potential examiners have been somewhat surprised and disappointed to be notified by DoTC that for an examination to be accredited there must be a complete package ie there must be Theory and Regulation question papers and CW sending and receiving examinations. This does not tally with the information previously received, and will make the preparation and administration of the examinations much more difficult. The WIA will be approaching the Department in an attempt to negotiate a more satisfactory arrangement.

Many groups are apparently intending to provide an examination in May on the traditional third Tuesday. Our congratulations to those organisers on their initiative, and our best wishes to the candidates.

However, I have heard from various sources that there is still a vocal minority opposing the devolved system. The fact that they are opposing the system does not bother me. But I do object to destructive criticism of those who are making a genuine attempt to make the system work, and loud-mouthed derision of their efforts.

There is no way we will be able to reverse the situation. It is up to all of us to 'give it a go' and do the best we can to produce functional and efficient procedures to help newcomers into a hobby which has so much to offer. We have here a chance to provide a service which will, if properly handled, be the most 'candidate friendly' of any examination system so far established. If we wish to continue to enjoy our present privileges, or to be in a position to lobby for increased privileges, we must take every opportunity to both increase the amateur population and boost the WIA membership. If we let this chance slip, we may not get another. **ar**

FTAC NEWS

John Martin VK3ZJC
3 Vernal Ave Mitcham 3132

Feedback: Information for the Data Base update has been received from VK2, VK3 and VK6. A list of corrections is to be published in "AR".

6 Metre Beacons: FTAC has approved a frequency change for the VK8RAS beacon to 50.043 MHz. It is proposed to set up a 50 kHz wide beacon segment for VK5/6/8/9 within the range 50.200 — 50.500 MHz. It should be noted that the WIA beacon policy still permits beacons on discrete frequencies outside the DX window in VK5/6/8/9.

6 Metre Band Plan: Several changes have been proposed to the 6 metre band plan. The first is to add two channels to the repeater segment: 52.550/53.550 and 52.575/53.575 MHz. These frequencies are already used by repeaters in VK3, but at present they are officially simplex channels. It is also proposed to allot 5 channels at 53MHz for packet radio, and possibly also some channels for other special purposes such as RTTY, WICEN etc.

Packet Radio Channels: A proposal has been made to increase the number of packet radio channels on the 2 metre band, by adding 144.925 MHz and moving the lower limit of the segment down to 144.700 MHz. A downward extension is suggested because it is less likely to cause any clashes with existing club nets above 145 MHz.

FTAC Mail: Mail to FTAC can be addressed to the Federal Executive office, to VK3ZJC (QTHR), or via packet radio to VK3ZJC via VK3RPA. **ar**

Have you advised DoTC of your new address?

CORRECTIONS TO BEACON AND REPEATER DATA BASE

The following corrections should be made to the lists published in February "A.R."

Duplex Repeaters

53.800 / 52.800	VK6RTH	Perth	Note correct input freq.
53.825 / 52.825	VK7RMD	Mt Duncan	Service area NW Tas.
53.900 / 52.900	VK3RMS	Mt Dandenong	Add to list
146.625 / 146.025	VK7RAD	Mt Duncan	Service area NW Tas.
146.700 / 146.100	VK3RML	Mt Dandenong	Add to list
146.900 / 146.300	VK3REB	Nungurner	Note correct location
147.050 / 147.650	VK3RGO	Omeo	Not yet on air

Simplex Repeaters

Delete the following - they are actually beacons:

144.435	VK3RMV	432.435	VK3RMV	432.450	VK3RAI	432.545	VK4RAR
144.550	VK5RSE	144.800	VK5VF	52.320	VK6RTT	52.460	VK6RPH
144.600	VK6RTT	52.470	VK7RNT				

Delete 144.575 VK3RMC: closed down.

Beacons

Discard the list published in the February "A.R." Reference Section. The list published in April "A.R." page 40 is correct, with the addition of the CW practice beacons VK2RCW and VK3RCW, both on 144.950.

ATV Repeaters

Replace the list published in February "A.R." with the following:

Output	Input	Call	Site	Service Area	Status
426.250	444.250	VK2RTW	Willans Hill	Wagga	O
579.250	426.250	VK2RPM	Middle Brother	Pt Macquarie	O
579.250	426.250	VK2RTN		Newcastle	O
579.250	426.250	VK2RTS	Springwood	Sydney area	O
579.250	444.250	VK2RTV	Gladesville	Sydney	O
579.250	444.250	VK2RTG	Kariong	Gosford/Wyong	O
579.250	426.250	VK3RMZ		Bendigo	O
579.250	426.250	VK3REX		Swan Hill	?
579.250	444.250	VK3RTV	Mt Dandenong	Melbourne	O
579.250	444.250	VK6RAP		Perth	T
426.250	444.250	VK7RTV	Mt Duncan	NW Tasmania	O
579.250	444.250	VK7RAE	Devonport	NE Tasmania	?

Status: O = operating T = testing ? = unknown

John Martin VK3ZJC
Acting Chairman, FTAC

SPOTLIGHT ON SWLing

ROBIN L HARWOOD VK7RH
52 CONNAUGHT CRES WEST LAUNCESTON 7250

Personnel at HCJB's transmitting site were surprised on Wednesday morning, February 21st, when some armed men broke into the facility, tied up the duty operators and stole about 50 circuit boards which, among other things, control the antenna switching operation, the audio processing system and the 500 kW sender. They also stole a mission vehicle. They left behind a note demanding $US250,000 and threatened additional damage to other HCJB facilities and to staff if any one of them were apprehended.

The dazed staff had HCJB back on-air by mid-morning with all but the 500 kW sender. Pre-established contingency plans were immediately implemented. The Ecuadorian authorities were informed and were very helpful as also were the US Embassy in Quito.

This action has had its effect on HCJB's output, particularly with the 500 KW sender, which was out of action for several weeks while the engineers made new circuit boards to operate it. Both HCJB and the authorities now believe that it was a criminal activity rather than a terrorist action. Additional security has been added to all HCJB facilities.

In last month's column, I referred to the VOA cutting language services due to budgetary limitations. Well, the VOA management have now changed their minds and will continue all existing language services. Radio Canada International has also decided to continue their Mid-East service in English via the transmitters of Radio Austria International in Moosbrun. They have decided, however, that RCI will continue in German for the time being, as the plans were to discontinue it, yet the momentum of German re-unification and its ramifications within Europe, has altered that.

In March, Radio Australia really stepped out, making several significant alterations to their frequency database. They now are operating on the 22 metre band on 13700 kHz from 0600 UTC. Other new channels are 17630, 15560 and 15465 kHz. The BBC reportedly have come on to the 22 metre band with Russian broadcasts.

Radio Vilnius in Lithuania has been having its problems with transmitters as well lately, but in this case, it involves the senders elsewhere within the USSR. As no doubt you're aware, the Lithuanian parliament unilaterally declared its independence of Soviet control. Radio Vilnius has some senders within Lithuania, yet relied mainly on other geographical sites within the USSR to get out its programming. The Soviets were displeased with Vilnius and temporarily terminated these relays. At deadline time, the situation has not been resolved, so it would be good to keep an ear on Vilnius at 2230 UTC on 15105 kHz in English. Other Soviet programming has been heard on that channel at times.

This year it will also be interesting noting the output of several eastern European broadcasters, on the first of May, since the momentous events towards the end of 1989, when the Iron Curtain came down. I won't be surprised if May Day is not celebrated in Czechoslovakia, East Germany or Poland any more. Even Radio Moscow has changed their emphasis with the May Day "live" broadcasts from Red Square.

Well, that is all for this month. Until next time, the very best of 73 and good listening.! **ar**

INTRUDER WATCH

GORDON LOVEDAY VK4KAL FEDERAL INTRUDER WATCH CO-ORDINATOR
AVIEMORE RUBYVALE 4702

"Intruder VCN has ceased (?) using this call since 11/01/90. Did Bill VK2COP cause the Canadians to act promptly?? All traffic is now under the call of VRQ where all others originate anyway. PKJ & VBXX were only copied by VK6XW, Karl, on 25/01/90. Some other observers have reports dating to 19/02/90, in Eastern States. There is still a proliferation of callsigns, eg UWX2, RMAJ, RBPP,L3T etc, churning out 5 letter groups for hours on end, taking up valuable band space....have they used up all their "usable freq" of 14250-14350kHz? The "RTTY" wheel on 14058.5 on a heading of 350 deg from VK6XW, same direction as VRQ, could come from another area...China has started using 14058+. Uses A1A marker pulse at abt 3pps. Data burst with 250Hz shift in very short bursts, usually less than 1 second. Heard after 0100 in NW USA. QTH was TSINGTAO in previous observations will require new bearings. More info needed here also. IARU REG 2 has had no loggings of "Woodpecker", has it disappeared? Also from Reg 2 UHF3 (from FCC) on 7047.9 cross bearings place it as being located in KOMANDORSIKYE ISLAND just NE of PETROPAVLOVSK on KAMCHATKA PENN (53 N x 170E). Now an action case. What will happen now depends on USSR. I have received quite a few observations of Australian stations using a portion of the 10 MHz band. Call signs are generally given, eg VL3974 on 10.139.7 USB. At the present time these are quite legal. Radio Branch advises it is not granting any more licences to the LANDMOBILE SERVICE operating on these frequencies. But I do not know, when or if, the operators will be asked to vacate. Watch these notes.

The first reports in the Special Survey, show plenty of activity on some of the bands, depending on propagation. **ar**

ALARA

JOY COLLIS VK2EBX
PO BOX 22 YEOVAL 2868

YLs who can celebrate their "Diamond Jubilee" as amateur radio operators are rare indeed, but such a one is Austine Henry VK3YL. ALARA is very pleased to extend warmest congratulations to Austine, and wish her many more years of activity in the hobby of amateur radio.

"HOW ABOUT SIXTY YEARS?"

ALARA is fortunate in having "long time" operators amongst its membership. This article tells the story of one - Austine Henry VK3YL, who, on 13th May this year will have been licensed for sixty years.

Austine's interest in radio began when, as a youngster convalescing after an operation, she was given a "cat's whisker type" crystal set. With this she experimented. Amateur operators were permitted on the broadcast band in those days. Austine discovered them and decided that she would like to join them. Encouraged and assisted by Will (who later became her husband) she studied for the necessary examinations. Having gained her Experimental Licence, she built a one watt transmitter using crystals ground from rejected lenses that were, after much searching, often found available from opticians in those days.

CW was the mode, and one noteworthy contact made in September 1930 was with Baron de la Rouche ON4HM, her first QSO with Belgium. At an Amateur Radio Exhibition in the Melbourne Town Hall in 1932 Austine's rack and panel home brew rig was displayed. Her mast in the front garden with "3YL" thereon was a landmark on Dandenong Road.

By 1933 Austine's proficiency in CW was such that she was admitted to the Royal

Australian Air Force Wireless Reserve, a group of amateurs who regularly visited Point Cook for training. Imagine the surprise of RAAF officers when a woman appeared in the group. Training included operating from a sturdy Wapiti plane.

When war broke out, Austine found herself debarred from active service (the WAAF had not been formed then) but she nevertheless exploited her talent as a Morse operator by taking the WIA classes that were set up to train service personnel.

After the war, like most amateurs, Austine found that modifying the surplus equipment then readily available was the effective way of returning to the air. In due course, commercial equipment took over the shack. A highlight contact in 1957 was that with FO8AP/MM on the ill-fated Tahiti Nui raft on which the operator was attempting to float to Chile.

Today 3YL's equipment includes the Drake line and a three element Yagi. CW DX has always been Austine's favourite activity, and a grand total of DX was amassed on "Zepps" and dipoles even before the beam appeared.

CW gave Austine a place on the ARRL DXCC Honour Roll as the first and only VK YL to achieve that distinction. She also is currently placed second on the Australian DXCC ladder. Other awards include Worked All States YL and the Canadian YL DXCC. She was the first VK YL to gain the ALARA Award. Austine is not only a very long time member of the RSGB and a foundation member of YASME, but also is an Assistant Director of the Old Old Timers' Club which has a membership of some 2000, and she is a member of YLRL, YLISSB and RAOTC.

Radio is not Austine's only interest. She is also a philatelist and an enthusiastic golfer. Illness of her husband has, however, restricted her time spent on the greens and fairways.

Congratulations on your sixty years as a licensed amateur, Austine, and our best wishes to you for the future.

(Mavis VK3KS and Bron VK3DYF)

Reminder:

ALARA AGM MONDAY 28TH MAY 3.580+/-QRM 1030 UTC

33/73

Joy

ar

Austine VK3YL

REPEATER LINK

Will McGhie VK6UU
21 Waterloo Cres Lesmurdie 6076

Repeater Linking

The February AMATEUR RADIO is interesting reading on page 12 and 13 under band plans for the Amateur Radio Service. To quote 'A pair of frequencies are to be used for repeater linking. Maximum power for inter-repeater linking is 5 Watts. Now there are two points about this regulation that I do not understand. Firstly, why, in order to link two repeaters together, must a pair of frequencies be used? If to link two 2 metre repeaters, the link between the repeaters must be on 420MHz in one direction and 440 MHz in the other, what a technically difficult way of going about it. The UHF link antenna has to have a wide bandwidth. The link equipment may not operate at its best performance by having 20MHz between receive and transmit. A cavity filter cannot be placed between the link transceiver and the antenna to solve any intermod or interference problems. The two sub-bands at 420 and 440 MHz are a good idea, but why it is necessary to use a pair of frequencies for each link is beyond me. If any one knows please let me know. The second part to this regulation is the limiting of the maximum power to 5 Watts. I also do not understand this. Supposing, in order to link two repeaters, 20 Watts is required to provide a noise free link? When this regulation was first drafted, the West Australian Repeater Group opposed it in writing. Why paint ourselves into a corner? Likewise, if any one knows why the 5 Watt limit on link transmitters, please let me know.

CTCSS Encoding

Solving the problem of future restrictions to be placed on repeater systems that are linked, is a complex and difficult problem. These restrictions come about, due to the decision taken that Amateurs can not be retransmitted to a band on which they are not licensed to operate. One solution is to nominate a separate CTCSS tone for each grade of licence, to be used when the extra linking facilities are available. It is important to note that, with no CTCSS tone fitted, the repeater system operates as it did before. CTCSS is only required if you want to gain access to a link to another repeater. As linking systems become more complex, the various grades of licence will have various degrees of access. The CTCSS tone will tell the repeater what grade of licence is requesting a link connection. The repeater will decide if the connection request is valid. With the present number of licence grades, a total of 4 CTCSS decoders would be required to identify the grade of Amateur licence. This may seem complex and a lot of work for the repeater builder, but it is not easy to overcome the problem. There are however some short cuts. For example, the difference between the Z call and K call on VHF and UHF is slight, so the K call could use the Z call CTCSS tone. There is only one example where separate tones are required, and that is where a 70cm or 2m repeater is linked to a frequency in the 28 to 28.6MHz band. A higher grade of licence can use a lower grade of CTCSS tone in a given situation. In fact, in order to place in operation a cross band 70cm to 2M system, the full call, K call and X call could all use the Z call CTCSS tone, until a more complex repeater link situation evolves requiring the use of more than one tone. This simplification is only to reduce the extra circuity required in the repeater. In the long term, each grade of licence with its own identifying CTCSS tone is the way to go. Do not forget this system could be with us for a long time, and it is easier to do it right in the first place. One other situation needs to be looked at: case where a repeater requires CTCSS tone is used to identify the grade of licence and interference protection to the repeater. The linking request is achieved by DTMF tones. All this may seem very overdesigned, but the more you look at the solution to the problem the more the complexity increases. This brief outline is the submission to the WIA. What was yours? By the way, it took a couple of hundred person hours to come up with a solution and to fine tune it. The top priority was to foresee all the possible ways linking may develop. The single CTCSS tone for each grade of licence will make it easier to install a CTCSS encoder in equipment not fitted. I look forward to the conclusion to the cross band link problem, so we can get on with linking some of our repeater systems in the West. All such planning and construction has ceased in VK6. **ar**

RANDOM RADIATORS

RON FISHER VK3OM
RON COOK VK3AFW

Another All-Band Dipole

Continuing on with the theme of multi-band wire antenna we present extracts from an article that appeared in Ham Radio Today, May 1984. In this Brian, G2WI, describes his "Dexterous Dipole" which was used on all the non-WARC bands from 160 m to 10 m. He used two 30 feet high masts to support his system which initially was a commercial KW five band trapped dipole. The SWR was up to 2.5:1 on some bands so an ATU was necessary. The antenna worked well but did not provide for 160 m. Strapping the feeders and feeding it against ground produced indifferent results. Brian then decided to add two more traps to allow operation as a dipole on 160 m.

"The traps were obtained from Wight Traps (G3IMX) along with some suggestions for their installation. After some digestion of these ideas, the 80 m traps were attached some 6 feet up from the bottoms of the vertical sections, the requisite extra 20 feet of wire was attached to the other side of these traps."

The general arrangement is shown in Fig 1. It should be noted that the main current carrying section is at the highest part of the antenna and is not bent. The 80 m tails are run in a straight line parallel to the masts. By placing the 80 m traps 6 feet from the ends the bandwidth is claimed to be better. Certainly placing the 160 m tails 9 feet or so above the ground allows complete access under the antenna. It is a simple scheme and Brian reports working plenty of DX and no TVI.

For the home brewer it is suggested that the 7 MHz traps be made with 60 pF capacitors and coils of about 8.2 uH for resonance at 7.2 MHz. These are the values used in the W3DZZ version of the five band dipole. A suitable high voltage capacitor can be made from a short length of coax or a piece of double-sided fibreglass printed circuit board.

No information on the 80 m traps is available but doubling both the capacitance and inductance values given above is as good a place to start as any. The 160 m tails might need to be adjusted for resonance. If they come out to be less than 10 feet then use more C and less L in the 80 m traps. Conversely if more than 30 feet is required, try increasing L and reducing C.

A final word from Brian. "It is hoped that this article will give heart to those struggling in awkward locations. It's amazing what a little ingenuity can do — go, give it a try!!"

More On The Wonderful Windom

John, VK5JG, writes describing his experiences with a Windom. He used 300 ohm ribbon feeder connected to a point 1/3 of the total length along from one end. The overall length is a half-wave on 80 m. For John's particular QTH this was more convenient than centre feed. On 80, 40 and 20 m it has performed "very well" but "results have not been good" on 10 m. Mike, VK3BDL once reported an improvement in operation of a G5RV on 10 m when he swapped an ordinary 300 ohm ribbon feeder for 300 ohm ladder line. Ladder line now appears to be unobtainable, but if some can be found or you are prepared to roll your own then it is worth considering.

John uses a simple ATU consisting of a 25 turn coil on a 2 inch diameter former resonated with an old broadcast receiver two gang capacitor. The feeder is tapped in a symmetric manner onto this coil. The 50 ohm coax is coupled via a 4 turn coil. Although not mentioned by John, we suggest that the rotor of the capacitor be grounded. This ATU tunes 80, 40 and 20 m without changing the coil. A separate ATU was used for 10 m.

The Windom is not intended for operation on 15 m or the WARC bands as it provides a match (nominally) only on the frequency at which it is a half wave long and on even harmonics of this frequency. John points out that further information on the Windom is given in the ARRL Antenna Book. (pp364,365 of the 1958 edition).

Peter, VK3BWD, has drawn our attention to the fact that a number of multiband and broadband antennas use the 1/3, 2/3 dimensions. More of this later.

And More On Baluns

Last time we made some cautionary comments about baluns when used on un-matched lines. Because of some questions raised we address this subject again. There is much good information on the topic, particularly in the ARRL publication "Transmission Line Transformers" by Jerry Sevick. (Available from Stewart Electronics and Magpubs.) Articles have also appeared from time to time in many journals, such as in Pat Hawker's Technical Topics column published in Radio Communication (February 1984 for example) and a letter by Wade Blocker in Proc IEEE, Vol 65 No 9 Sept 1977 pp 1045, 1046. What follows is a summary of some of the more important points.

There are two types of broad-band impedance matching transformer, namely a conventional transformer of careful design, and a transmission line transformer. Both may be used as baluns as well as impedance matchers.

Conventional Transformers

These can be made to cover the range from sub-audio to VHF, but not in the same device. They can offer dc isolation but suffer from the well known limitations of conventional transformers, namely increased core losses at higher frequencies, core saturation at high voltages or low frequencies (relative to the design paramaters) and resonances between leakage reactances, winding inductances and stray and inter-winding capacitances.

Matching ratios

A significant advantage is the ability to select virtually any transformation ratio,

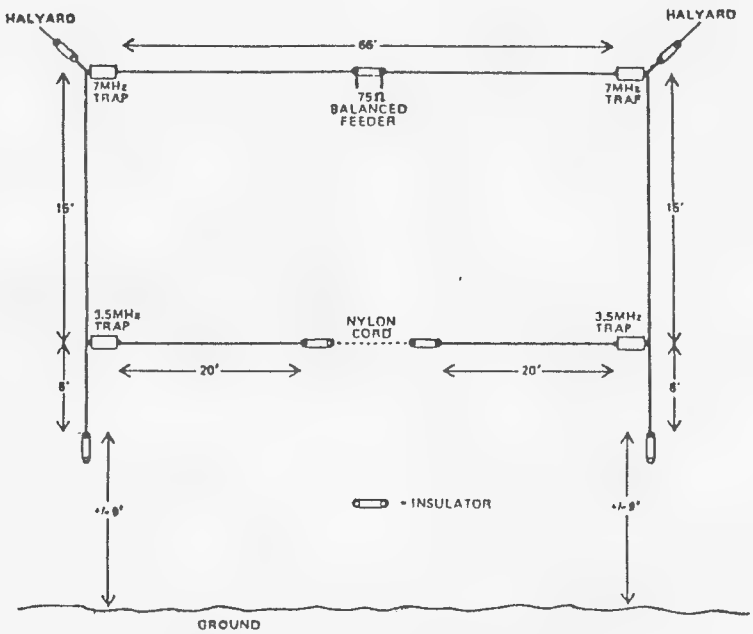


Fig. 1 Configuration of G2WI's 160-10m dipole antenna

indeed many matching transformers have a range of taps to allow a wide range of matching ratios.

Power Rating

Their power rating is determined by the core size as the flux is determined by the power being transmitted and core saturation must be avoided otherwise coupling drops and harmonics are generated, to say nothing of the increased core losses.

Using a rod instead of a toroidal core reduces the saturation problem but replaces it with a reduced bandwidth and reduced coupling as well.

Frequency Response

The high frequency cutoff is determined by the combined effect of resonance and the shunt impedance of stray capacitance. Some high performance transformers use overwound windings to produce tight coupling but incorporate a Faraday screen to minimise capacitive coupling. The low frequency cutoff is determined by the inductance of the windings.

Transmission Line Devices

Construction

The simplest form of balun, which provides a 1:1 match, is produced by winding the transmission line into a coil, which can be either a multi-layer or single layer solenoid. The currents flowing in the transmission line are not affected by the inductance so formed if the currents are balanced. An unbalanced current has to flow through the inductance. This is best understood if the case of a coiled coaxial cable is considered, but the same applies for a two wire balanced line.

If a ferrite core is used then a significant increase in the inductance is obtained, increasing the bandwidth at both the low and high frequency ends due to the presence of the core. As explained later other parameters also affect the bandwidth.

Instead of winding the cable through the core, several small cores can be slipped over the cable, six cores being equal to six turns through the core. This has the advantage of simple construction and allows the use of smaller cores for any given power level.

Typical construction is of a twin pair of twisted wires, representing a transmission line of specific impedance, wound in a single layer on a toroidal core.

Operation

As only the common mode or residual unbalanced current produces a nett current, the flux in the core is low, hence small cores can handle very high powers and the core losses are low. For a given length of wire, the ferrite toroid gives a higher inductance than a ferrite rod core which is superior to an air core. All three are used at times, but the ferrite toroid is most used at HF.

Bandwidth

At the low frequency end the device behaves in a similar manner to an auto-transformer and has the same limitations as a conventional transformer. As a minimum recommended limit the primary inductive reactance should be 75 ohms and preferably 250 ohms for a 50 ohm primary load. It seems advantageous to design the device with a lower frequency limit than is actually needed.

At the high frequency end the loss increases as the line length approaches 1/4 wavelength. At lengths of 1/2 wavelength negligible power may be transferred. Using a high permeability core allows a shorter length of wire to be used for a given low frequency limit and hence gives an extended high frequency limit, that is a high permeability core gives greater bandwidths. Ferrite has been found to be better than powdered iron.

Losses

The principal losses in transmission line matching devices are:

(i) copper loss
(ii) dielectric loss, including that of the core
(iii) mismatch loss, arising from the load deviating from the nominal value

Maximum efficiency occurs when the characteristic impedance of the line used in the transformer, Zo is give by:

$$Zo = \sqrt{(Z1.Zg)}$$

where Z_1 is the load impedance and
Z_g is the generator impedance.

The load or generator can both be balanced, unbalanced or any combination of these.

Rods vs Toroids

Rods give a simpler construction than toroids but will have an inferior low frequency response for a given length of wire, so the choice involves a compromise.

Range Of Impedance Ratios

Transmission line transformers excel in transferring 50 ohm impedances to ones in the region of 10 to 200 ohms. Extension of operation beyond these limits can be done, but usually the bandwidth or efficiency is reduced. Multiple wire transmission lines must be used for cases where ratios other than the simple 1;1, 4:1 or 1:4 are required.

Acknowledgements

The feedback from readers, and in particular the contributions from John, VK5JG and Peter, VK3BWD is gratefully acknowledged. Contributions from other readers on antenna topics will be appreciated.

ar

WICEN

LEIGH BAKER VK3TP
WICEN CO-ORDINATOR VK3 1986-89

The ability of the amateur service to provide emergency communications has been demonstrated many times, most recently perhaps on the occasion of the Newcastle earthquake. This event showed to all involved the competence and versatility of a WICEN group. A full report of the operation will be published shortly.

The potential value of the amateur service in national emergencies has been used as justification for our existence, and an argument for the retention or expansion of our privileges. But for much of the time, the value has been potential rather than actual. The ability has always been there and operators respond when the emergency occurs, but organisation, training and liaison with other authorities have been erratic and lacking in continuity.

This article has been written to summarise the present WICEN situation in Victoria, not because it is particularly good or because it is better than in other states, but as a starting point for useful interchange of ideas between Divisions and in the hope of stimulating similar summaries from other Divisions.

As in many other aspects of amateur radio, there is far too little lateral communication, and too little communication overall. Many amateurs who are fully aware of how their own Division handles WICEN (or exams, or tower applications, or repeaters) have little idea of what happens over the border. This is a plea for better communications, for finding out what others have done, and sharing ideas and success/failure stories so that we can all benefit. In an organisation that runs almost completely on volunteer time and effort, it makes sense to avoid repeating other people's mistakes.

In Victoria, WICEN has been active for nearly 50 years. In the early years, it appeared when the emergency (usually a major bushfire) arose, went through a brief period of activity afterwards when the administration was reviewed, then quietly faded out until the the next big blow-up. As major fires tend to be 10-15 years apart, when the next event occurred, those who had gone through the reviewing and organising during and after the last event had lost interest or were retired or dead. Official bodies, which recognised WICEN as an element of their Disaster Plan, frequently had very outdated personnel lists. In addition, most of the training took place in the actual emergency situation, although the Murray River Canoe Marathon regularly provided some training, and small groups of enthusiasts ran some exercises.

However, the last decade has seen very considerable development. At the time of the 1983 fires, the Victorian State Disaster plan (Displan) recognised WICEN as an entity, but had not specified its role. After the fires, steps were taken to define this role, to make the Displan authorities and others aware of WICEN's potential, and to increase the number and quality of available operators. As a result, we now have a large pool of compe-

tent operators, a well defined place in the Displan, and a good working relationship with disaster and relief agencies in almost all districts.

The role of WICEN in Victoria is seen as being to co-ordinate the response of the amateur service to an emergency situation. Under the State Disaster Plan, the responsibility for management of a disaster is vested in the Police Force, the Chief Commissioner of Police being the State Disaster Co-ordinator. In the current Displan, WICEN ranks as an organisation of equal standing with the Country Fire Authority, the State Emergency Service, or Department of Community Services. WICEN may be called on to provide communications for the Police, combatting agencies, support agencies, or even the public, if conventional services are not available.

The organisation of WICEN in Victoria follows the pattern of the State Disaster Plan. The State is divided into 26 Regions which coincide with the Country Fire Authority Regions. Unfortunately, these do not coincide with WIA zones, but it was seen as more important to match with the other Disaster organisations that to adhere strictly to the Zones. Overall management is vested in the WICEN State Co-ordinator, who is elected by the VK3 membership, with the appointment then ratified by the WIA Victorian Division. Each Region has a Regional Co-ordinator and a Deputy, who are responsible for the groups and teams in the Region. A Regional Co-ordinator is responsible for any disaster activity and training exercises in his/her own Region, but can ask for help in an emergency from a neighbouring Region or the State Co-ordinator.

Since 1983, there has been a deliberate policy of liaison with the Police and other authorities, so that, at the present time in most Regions, WICEN is represented on all Displan committees. This means that it has been possible to negotiate with all other authorities, and the WICEN operators as registered emergency workers have all the insurance and compensation provisions provided under the Emergency Management Act.

There has also been a concerted training program, so that there are now more than 400 trained and available operators. Training has been largely by means of exercises — the traditional Murray River Canoe Marathon still runs every year, but in addition WICEN teams provide safety and results communications for car rallies, horse endurance rides, bike rides, fun runs, and events such as an Open Day at Tullamarine Airport, and the International Equestrian Competition at Werribee last year. Overall, in 1989, VK3 WICEN operators attended over 70 events, in some of which interstate operators also participated. In fact, it has become necessary of late to keep a fairly low profile, to avoid overcommitting the members. To reduce the load on the leaders, and as a further training exercise, the events are co-ordinated by different operators.

One major initiative has been the production of two Handbooks. The "Regional Co-ordinators Manual" contains the administrative material — paperwork for formal exercises, registration forms, call-out procedures and contacts, both amateur and inter-service. The "Procedures and Techniques Manual" is the guide to the field operator, covering operating procedures and conventions, message handling, duties of WICEN officers and equipment standards. Both these volumes have been endorsed by both the Victorian Police and the SES. Other initiatives include the establishment of a phone BBS for information dispersal, (03) 232 0913), construction of several portable repeaters and involvement in many club projects.

So WICEN Victoria is now a functioning, well used and efficient organisation, in good standing with the local Disaster authorities. Some of the bodies for which WICEN provides services as exercises pay some compensation for costs. Training exercises are frequent and often enjoyable. There is a place for all interested persons — even the unlicensed can participate as log-keepers, or drivers.

But there is an urgent need for more liaison between Divisions. At present, Victorian amateurs lose their insurance cover once they cross a State border in an emergency operation. Obviously, this is a case for discussion and negotiation between the State Disaster organisations, but perhaps some pressure can come from WICEN in other States, too.

If there are ideas or resources mentioned here that you feel could be used in WICEN in other Divisions, please let us know and VK3 will be happy to share. If you have some good ideas to share, we would certainly like to hear them.

As a start to more lateral communication, it is intended to hold a telephone meeting of all WICEN State Co-ordinators in early June, with the Federal WICEN Co-ordinator, Bill Wardrop, VK5AWM, as moderator, when some of the procedural differences can be resolved, and plans made for closer co-operation. A report of this will be published as soon as possible thereafter. **ar**

DIVISIONAL NOTES

FORWARD BIAS

Phil Clark VK1PC

The first meeting of the 1990 committee was held on Tuesday 13th March 1990. New committee members Darryl, VK1DF and Marion, VK1BNG were made welcome.

As this was the first meeting of a new committee, there was quite a full agenda to be discussed. Some of the items were: how to keep members informed of the educational publications available through the bookshop, more about examination devolvement, recruitment, new members, promoting amateur radio and the WIA, charges for repeater sites, self regulation of amateur bands, and the allocation of portfolios was made. Reports were received from the Treasurer, the outgoing Federal Councillor and the Field day co-ordinator. Kevin VK10K, the retiring Federal Councillor, was given a vote of thanks for his work on behalf of the division as he handed over this task to the capable hands of George, VK1GB.

Four new members were accepted at this meeting. We welcome to the division: Mal Cooper, VK1MC with congratulations on upgrading recently to the full call! Gordon Brown, VK1AD and Doug Jackson, VK1ZDJ who have returned to the fold, Russel Thompson, VK1NRT with congratulations on that vital first novice step!

The division is very pleased to see the membership growing, as a lot of the work now is with DOTC and international bodies due to the pressure the bands for our hobby are under from other interests. As the only national body representing amateurs to our government agencies, the more members we have the better we are able to represent amateur radio when things are proposed. All members are asked to encourage non-members to join for the protection of the bands and privileges that they enjoy.

The matter of charges for the repeater and beacon sites has been a difficult one for the division. Being a small division, the charges are a significant part of our budget, even after the reductions that have been made. Because of the cost of sites, we may reluctantly have to relinquish the Mt Majura site for beacons, however at this stage we will still maintain the facility on Mt Ginini. Another location is now being sought for the equipment that may be removed from Mt Majura.

Here are just some of the portfolios for the 1990 committee that were allocated:

Book sales and Forward Bias	VK1PC
Broadcast manager(s)	VK1KNP and VK1DF with VK1BNG
Federal Councillor	VK1GB
FTAC	VK1DF and VK1KCM
President	VK1AOP
Treasurer and Membership	VK1KEN
Secretary	VK1BR
Senior Vice President	VK1KCM
Vice President	VK1PC
WICEN Co-ordinator and Liaison	VK1KEN and VK1BNG
QSL Inwards	VK1KEN
QSL Outwards	VK1AOP

Of course these are just a few, and if you want to know who is doing what, ask at any of the meetings or contact a committee member.

The bookshop has been active in obtaining stocks of the popular technical books as well

as those that members order for themselves,so have a look at the books at each monthly meeting. As part of the effort to provide information to members on this educational service, we were going to try to give several short reviews of books on the weekly broadcasts, however the current interpretation of the DOTC ruling on the content of WIA amateur news broadcasts seems to prevent us from doing this at the present time.

The division set up a station for the John Moyle Memorial Field Day at the Kowen forest fire tower. I will have more about this next time. **ar**

VK2 NOTES

TIM MILLS VK2ZTM

Annual General Meeting

This was held at the end of April for the year of 1989. Members should have received the annual report as an insert to April "Amateur Radio". Remember to cut your membership card for this year from the back page of the report. At the time nominations for Council closed in March, only seven members had been proposed and a ballot was not required. Details of the new office bearers and meeting report will be given over the VK2WI broadcast and included in a future "AR".

Video Tapes

Many clubs and groups have made use of the Federal video tape library and obtained copies of what John VK5KG has available. A reminder that the VK2 Divison has copies of most of what is available in the VHS format at the Parramatta office. Recent titles at the VK2 office are "How to Survive in a Dog Pile" by John VK2DEJ; and "HF DX Seminar" with Iris and Lloyd Colvin. Some more material next month.

Coming Events

With winter approaching, it is expected that the VK2WI 80 metre morning AM transmission will be re-introduced. Most likely without callbacks, since good coverage is being obtained on both 40 metres (7146) and 30 metres (10125). While on the subject of 80 metres, the evening slow morse session from VK2BWI has now been standardised to start at 8 pm local time, regardless of time changes. It will be followed an hour later by VK5AWI. It is hoped that this will overcome the confusion resulting from the annual daylight saving changes.

The next Trash & Treasure will be held at VK2WI Dural, weather permitting. Sunday the 27th May. Why not come up and have a barbecue first. Listen to the morning broadcast on the 27th for the weather details and if it is on. Saturday the 2nd June will be the annual fireworks display at VK2WI Dural, again weather permitting. On the June long weekend 9 - 10th, the annual Oxley Region field day will be held at Port Macquarie.

QSL Bureau

Just a reminder to keep in touch with the VK2 Bureau at PO Box 73, Teralba, 2284 for the handling of your cards. Advise them just what you require, and hence keep the volume of uncollected cards down. Watch the size of your packet of outwards cards sent to the bureau. Changes in postal regulations impose a thickness limit of 20 mm on large letters. Above that, your packet becomes a parcel. The Bureau reports that they have been receiving cards produced on computer paper. While this approach may cut the weight, they are almost impossible to sort, so please do not use this format. The same type of problem occurs with non-standard cards. They will not fit into postings without having to be folded. They also alter the weight and in turn the operating cost of the Bureau. If in doubt about the operating requirements of the VK2 Bureau, collect a copy from the Parramatta office or send a stamped, self addressed envelope to the Bureau at PO Box 73, Teralba, 2284.

WICEN (NSW) Inc

This month there are two small exercises on the 20th. The first is communications at Amaroo with cars. Peter VK2EMU is looking after this event. The other is at Bungonia Caves with a public open day. Details from Morton VK2DEX.

Local WICEN Co-ordinators — for Orange, Robert VK2ZRJ; Central Coast, Ray VK2TV; Newcastle area, Philip VK2IW. During April details about WICEN were sent to some 40 clubs and groups in the State. Included were application forms. The annual WICEN dues are $5.00. Check with your Local Co-ordinator, your club or the State WICEN Committee at PO Box 123 St Leonards NSW 2065.

An audio cassette on WICEN Voice Procedure was recently produced and sent to WICEN members.

T Plugs

Several interesting replies were received to the question posed in the February notes. While there does appear to be a preferred format, there has been no indication if a formal method has even been adopted. Most replies express personal preference. A summary will follow later.

New Members

The following became members of the VK2 Division during March and a warm welcome is extended to them.

J T K Blade	VK2AJB	Riverwood
D P Byrnes	VK2TDB	Cullerin
C Edmondson	VK2XLK	Port Macquarie
J T Hefferan	Assoc	Ambervale
B L Wilkinson	VK2XMU	Hillsdale

ATV Forum

A well attended forum on ATV operation was held at Amateur Radio House in early March. Minutes were sent to those groups who submitted agenda items, and copies are available from the Parramatta office. A subcommittee, chaired by Peter VK2ABH, has been set up to assist with ATV in VK2. **ar**

VK3 NOTES

JIM LINTON VK3PC

Busy Month of May

This month sees the planned start of WIA

Morseword No 38

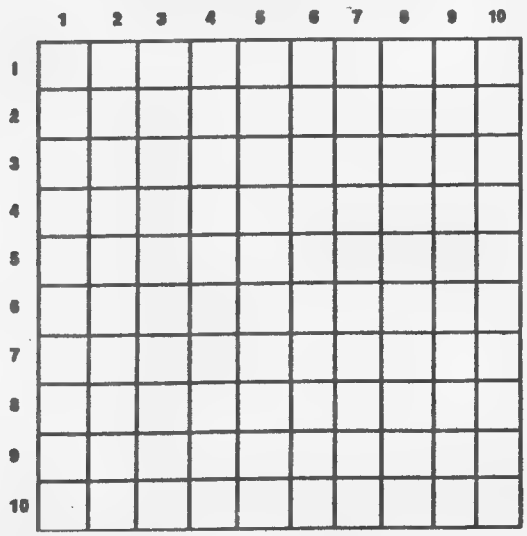
Solution on page 56

Across

1 Pulls
2 Trick
3 Seep out
4 Chooks
5 In what way?
6 French military cap
7 Rice wine
8 Graber
9 Marries
10 Upper House

Down

1 Cubes
2 Fruit
3 Russian name
4 Unopened flower
5 Brought out
6 Clotted blood
7 God of love
8 Part of the eye
9 Turn outwards
10 Fluids



Audrey Ryan © 1989

Victorian Division Examinations Service, the election of the 1990-91 Divisional Council, and the Vic Div Annual General Meeting. Members have been advised about the AGM and supplied with the customary reports and financial statements. Considerable work is required at this time each year to meet all Corporate Affairs Commission requirements, and the exhaustive but necessary probe of our financial affairs by the auditors. The results are to be seen when members read the director's report, financial statement and balance sheet. The provision of a statewide examinations service due to begin this month is a milestone which followed a lot of preparation work over the past year. Examinations are now more widely available than ever before which should help those wanting to quality or upgrade a presently held amateur qualification.

Check Out Rumours If You're Concerned

A member became concerned when he heard others on air bemoaning the WIA Victorian Division QSL Bureau policy of charging non-members of the Division for use of the outwards Bureau facility. Those voicing criticism were not members of the WIA who obviously spoke out of ignorance. The WIA member noted their concerns and personally undertook to check on the policy and the reasons for it, and advise them what he had found out.

The member was told by the WIA Victorian Division secretary Barry Wilton VK3XV that the Division has a policy of not using membership funds to provide services to non-members. Those who choose not to join and support the WIA through membership are currently charged on a per-card basis for cards sent overseas. But the current practice of including non-WIA members QSL cards with those sent overseas is being phased out. The Division is under no obligation to provide this service to non-members.

The broad issue highlighted by the inquiring actions by the WIA member in this instance is that rumours and criticism of the WIA can be checked out. The WIA Victorian Division is the authoritive source available to any member concerned about anything they hear others claiming the WIA is allegedly doing or not doing.

Weekly Broadcast

Let us have your news. Often the activities of a radio club, group or zone, or even an individual, could be of interest to others, but we don't hear about it. On some occasions the VK3BWI broadcast team has heard about an interesting activity and chased the details suitable for broadcast. The broadcast team will continue to hunt out and report news -- they take pride in striving to maintain the high standard achieved by the broadcast. But ours is a communicating hobby and why can't those involved in events and activities put ink to paper, and ensure it reaches the broadcast via the Divisional Office by the 2pm Thursday deadline?

The First Examinations

A small number of candidates sat for a special examination session held last month at the WIA Victorian Division Office.

A few lessons were learnt in the conducting of examinations during this session which was really a trial run for the statewide examinations scheduled for May 15. The devolution of examinations has definite benefits for candidates and in Victoria one of these is the increased number of examination centres. It is expeected about 100 candidates will be sitting the WIA Victorian Division Examinations Service exams at 15 centres around Victoria and in Albury. **ar**

VK4 NOTES

DAVID JONES VK4NLV

The 1990 VK4 Radio Club Conference, Annual General Meeting and dinner were held over the weekend of the seventh and eighth of April, at the Bardon Professional Development Centre in Brisbane.

The RCC was attended by twenty-seven voting club delegates, plus all Councillors (including the 1990 nominees), most of our ex-officio officers, and two very thoughtful and experienced guests in Ron Henderson VK1RH, Vice-Chairman of FE, and Reg Brooke VK2AI, Affiliated Clubs Officer for VK2.

The Conference was well-chaired by the old quiet joker himself, Cliff Jenkins VK4QJ, with the Club Conference taking up most of the two days of sessions. The only "time-off" was for the AGM of the Division which commenced at 1630K on Saturday 7th. This was attended by some sixty members of the Division, plus the Member Clubs, and it concluded some two hours later. The main items of business were the presentation of a proposed new Articles of Association, including the adopting of a new Memorandum of Association. We didn't get through the Articles, as there were fifty-one clauses; however, twenty-six were approved, so we're well on the way, and not before time too. It's taken a lot to get this far, but now it's happening, and importantly, this Division can now complete its application for tax exemption. Congratulations to the constitution Sub-committee.

Election Of The Council

The following were elected to the Divisional Council for 1990, with office bearers to be elected by the Council itself.

Bill Dalgleish VK4UB, Eric Fittock VK4NEF, Eddie Fisher VK4ABX, John Bews VK4KJB, David Jerome VK4YAN, Harry Standfast VK4ASF, Neville Mills VK4KOP, Don Thomson VK4YI, Ross Mutzelburg VK4IY, Bill Sebbens VK4XZ, Doug Inall VK4XX and David Jones VK4NLV.

For the first time in many years, we now have a Council of twelve. Congratulations to all those elected.

And finally, it was with great pleasure that President, David VK4NLV, was able to present Merit Badge No 30 to Theo Marks VK4MU, for his fifty-plus years of service to the ARS and for his exemplary service to this Divison. Well done, Theo. You are a wonderful example to us all.

After the AGM, we all retired to the dining room for a very well prepared dinner, which was followed by a laugh-a-minute after-dinner address by Terry Hammond VK4TH talking about radio and yachts. Terry was thanked by Brian VK4RX, who had no trouble convincing us to stay land-lubbers. This was followed by the presentation of a beautiful floral-arrangement to Jan Jones, David's wife, for all the typing and preparation she has done for the WIAQ during David's two years of involvement. Thank you Jan, from all of us.

All-in-all, a great weekend of Amateur Radio. **ar**

5/8 WAVE

JENNIFER WARRINGTON VK5ANW

Club's Convention 1990

Once again a very successful Clubs' Convention was held at Ridgehaven Primary School over the 17/18 March.

Clubs Represented were, Lower Eyre Peninsula, ACBRO (Assoc of Citizens and Band Radio Ops), Lower Murray, 2nd Adelaide Scouts, Darwin, Alice Springs, Barossa, Elizabeth, Port Adelaide, South Coast, Adelaide Hills and SA ATV Grp. Apologies were received from Moonta Scouts, Riverland, and various individuals.

As there were not the number of Federal Agenda Items that had been discussed in former years, the discussion was of a more general nature, but never-the-less created a great deal of input.

It was especially pleasing that we managed to get delegates from Darwin and Alice Springs this year. Although we wouldn't have wished on "Spud" VK8ZWM the sad circumstances of his father's death, which was the reason he was in Adelaide, we were however pleased to have him with us. Darwin must have been a very dull and quiet place that month! Likewise it was good to meet a new face from Alice Springs, Murray Collings VK8NUE.

Besides our Guest Speaker on the Sat evening, Geoff Stephens from DOTC, there were several "mini" Guest Speakers, who addressed the gathering from time to time. These included, Kevin May VK5IV — our Broadcast Producer; Peter Koen the new Commissioner for Scout Radio in SA; Barry Chammen VK5KCX our Disposals Officer: Neil Abraham VK5ZJA & Craig Maitland VK5ZAW our Repeater Committee; John Ingham VK5KG our Federal Video Tape Co-ordinator; and Mark Spooner VK5AVQ & Dave Minchin VK5KK our new ESC manag-

ers. Various other people like the QSL manager, WICEN Director, Federal Councillor etc also spoke. We would like to thank all these people and all the delegates and Council Members who gave up their weekend or part thereof, for the sole purpose of trying to improve the hobby of Amateur Radio, in one way or another. Of course, one of the most important parts of the weekend is the food! and once again we weren't disappointed. Our Special Thanks go to Pam Bruce (who did all the buying and co-ordinating), Gill Wardrop, who never lets us down, even when she had something else on that weekend which she would have liked to have attended. Also, thanks to Marnie Allan and Margaret McDonald who helped on Sunday. It was all very much appreciated.

Photos Of Past Presidents

The collection of the photos of Past Presidents is going very well as I have found a number of them in the photo albums in the Historians Cabinet. It has now got to the stage where I can give a "short list" of those we are still looking for, (I am talking about the early ones, the more recent ones will hear from me in due course!) If you have photos of any of the following I would be very pleased to hear from you.

A Mather (Provisional President 10.9.1919)
R B Caldwell (1923-25 & 1927-31)
Jack M Honner (1925-27)
Joe Kilgariff VK5JT (1937-39)
Ivor Thomas VK5IT (1945-47)

I have photos of R D Elliot VK5RD, Ozzie Richardson & Marshall Hider but they are not very good quality for enlarging so a second source of these would be appreciated.

Diary Dates

Tues May 22nd Buy and Sell night (don't forget it's the FOURTH Tues NOT the fifth!) **ar**

VK6 NOTES

JOHN HOWLETT VK6ATA

Exams

A meeting between WIA, DOTC and TAFE has seen the future of AR exams settled. TAFE in WA will carry out all aspects of the exams and a TAFE certificate will be issued to the successful candidates. A list of certificate recipients will be sent to the DOTC to provide a check list for those applying for a licence. Expertise with exams is TAFE business and security is assured. Some 52 exam centres will be available with exams being held 4 times a year as normal. As an experiment 2 exams will be held during the day and 2 in the evening. "ON DEMAND" exams will also be part of the new service at extra cost. Morse exams will also be available at language teaching centres, as cassette and headphone equipment is already in place. Enquiries for exam information centre should be now directed to TAFE Information Centre, 401 Hay Street, Perth Phone 325 3544. Remember the arrangement is new, have patience while TAFE staff finalise every aspect. Don't ring DOTC or WIA with exam enquiries — however you may ring with praise for a job well done!

21 Net

Licensed operators about 21 years old are invited to call into a net taking place at 2030 local time on the first Sunday of the month. Check in on CH2[146.700] or 3.580 MHz and take part. Operators to listen for are: James VK6FJA and Peter VK6BWI.

Membership

The good work started by Fred Page is still bringing in new members. Unconfirmed reports give membership as 70% of active amateurs, remember that is active operators not just licence holders. We still have a lot to do to convince more out there to join. **ar**

CLUB CORNER

WIA Western Zone

Annual meeting of the Western Zone WIA Victorian Division to be held at the Lake Bolac Hotel, Lake Bolac.
At 1330 hours on May 26 1990
All amateurs welcome.

Bob Pitcher Sec VK3NBV
Box 539 Hamilton 3300
(055) 72 1788

International Amateur Radio Club

The first regular privately conducted amateur radio licence exam inAustralia was held on Sunday 4th March 1990 at the International Amateur Radio Club (IARC) in Sydney. *(AHARS would seem to have prior claim to this distinction, Sam, See AR Feb 1990 p50 - Ed)*

Every 4 weeks all grades of amateur exams are conducted by IARC compared to the one exam every 3 months previously conducted by the government.

Sam VK2BVS says that this should help to motivate people to try again for the next exam instead of thinking why wait 3 months - I'll get involved in some other more accessible interest.

Even though candidates risk being turned away because of lack of space or materials, they were allowed to sign up for the IARC conducted exam on the day. Previously people had to apply one month prior to a government exam date.

Sam says this gets rid of an unnecessary restriction and makes the exam more accessible for people in today's dynamic lifestyle. 14 people attended the IARC examination and got their results same day; and the next day, a Monday, those who were successful were able to show their exam result and obtain their amateur licence at a DOTC office.

Who will be second?, third?, fourth? to organise regular private amateur radio licence examinations in Australia?

Sam says now that anyone can apply to conduct amateur radio licensing examinations. The training, examining and promoting of our hobby is in the hands of all 18,000 Australian amateurs. Does this mean we could have 18000 exam centres in Australia? Well Sam says probably not. However because the means of motivating people and directly experiencing the satisfaction of the results is now

First happy band of candidates for IARC privately conducted AOCP exam. (We wonder if the hand-held helped to provide answers? Ed)

all in the hands of every radio amateur, rather than the government, the effect must be to motivate amateurs to fill their exam rooms or experience dropping numbers of candidates. - This means promoting amateur radio in the general community, wherever you live.

Sam says dropping numbers of candidates in Government exams previously had little effect on amateurs, because what was out of sight was out of mind. Now the situation has changed.

To enrol in the next IARC amateur radio licence exam, telephone Sam on (02) 407 1066. If you are holding exams, write in and let us know, so it can appear in this journal.

Moorabbin & District Radio Club

Combined Trade Day And White Elephant Day
Big Event Planned For June

Trade days and white elephant days at the Moorabbin and District Radio Club have always been well attended and voted very successful by all concerned.

This year, the club has decided to combine the two events into the one big event.

Additional accommodation is being arranged, and adequate free parking is available around the club rooms, which are located in the Turner Road Reserve in Turner Road McKinnon Melway Map Reference 77 G 9.

Most important of all is the date Saturday June 16th 10 am to 4 pm. Doors will open at 8.30 am to allow traders and others involved to set up their stands.

Intending participants or visitors requiring further information should contact the Club's hard working Secretary Doug Richards VK3CCY, who is QTHR or telephone (03) 583 4462.

Allan Doble VK3AMD
Publicity Officer
(03) 570 4610 **ar**

QSLs FROM THE WIA COLLECTION (23)

KEN MATCHETT VK3TL HON CURATOR WIA QSL COLLECTION
PO BOX 1 SEVILLE VIC 3139

Nauru — Phosphate Island C21NI

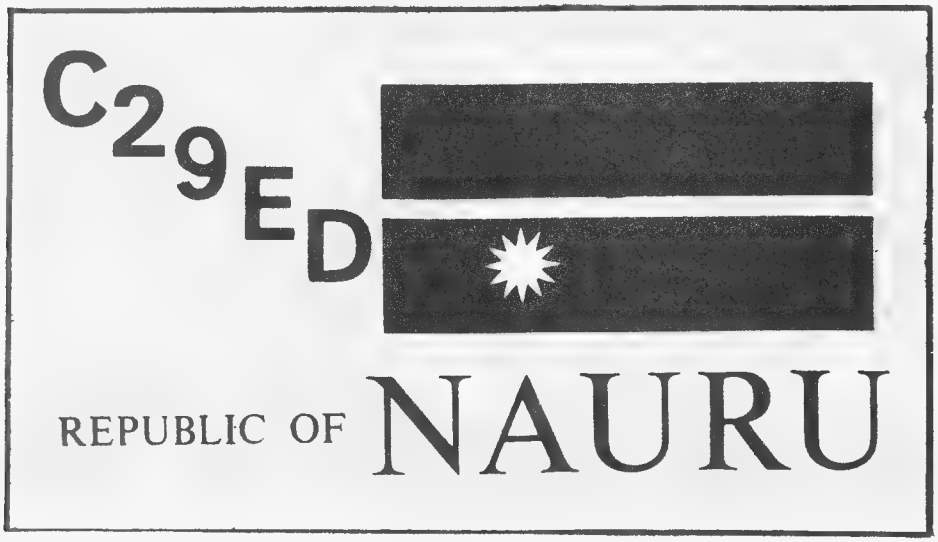
On most atlases the island of Nauru appears as a small dot just south of the equator. It is one of the smallest nations on earth being about 20 km around its perimeter. The C21NI QSL is that of the Nauru Amateur Radio Club, and it shows the island's location. It will be seen that the island is south of the Marshall Islands, just west of its nearest neighbour Ocean Island (Western Kiribati) and north east of the Solomons.

Around the island is a coral reef which is exposed at low tide. This necessitates the construction of a huge cantilever bridge jutting out into the sea from which the island's only export, rock phosphate, is loaded into ships. By the shore is a strip of fertile land on which most of the vegetation and houses are found. On the inner side of this fertile strip rises a plateau approximately 70 metres high from which the phosphate is extracted by machinery leaving a moonscape-like pattern of high pinnacles of hard limestone.

A few years ago Nauru was widely regarded as the world's richest nation per capita. However, losses by Air Nauru, the Nauru Pacific Shipping Line and sundry debt problems threaten to change the picture. Supplies of phosphate are rapidly diminishing. It is hoped that a solution will be found through profitable investments for these islanders.

Being an island only one degree south of the equator, the humidity is very high and special precautions have to be taken to prevent mould on clothing and furniture, not to mention electrical equipment. All the Government buildings and the homes of expatriates are air-conditioned. Rainfall is very variable and can be as high as 180 inches (about 5,000 mm) annually. Temperatures are fairly high (about 30 deg C) with little difference between day and night temperatures.

Prior to 1914 Nauru was part of the Protectorate of German New Guinea, but upon the outbreak of World War 1, the island was occupied by Australian forces. After the war, Nauru was jointly administrated by Australia, Great Britain and New Zealand. An Australian Administrator was appointed. After a period of Japanese occupation (from 1942 to 1945) an Administrator was again appointed, but the island finally gained its independence on 31st January 1968. It became a Republic under a President, the first one being Hammer De Roburt (who, incidentally gained much of his schooling at Geelong, Victoria).



The population of Nauru is about 8,000 some 5000 being native Nauruans, the remainder being made up of other Pacific Islanders (who provide much of the work force), Chinese (who are important traders) and others. There are also a few hundred Australians and New Zealanders who provide much of the work force in administration and education.

This QSL, dated October, 1977 was sent by the Nauru Radio Club to Old Timer, Des Butler VK1DL of Hughes, ACT. Des became a Silent Key in 1986, his QSL collection being donated to the WIA by his widow, Jean.

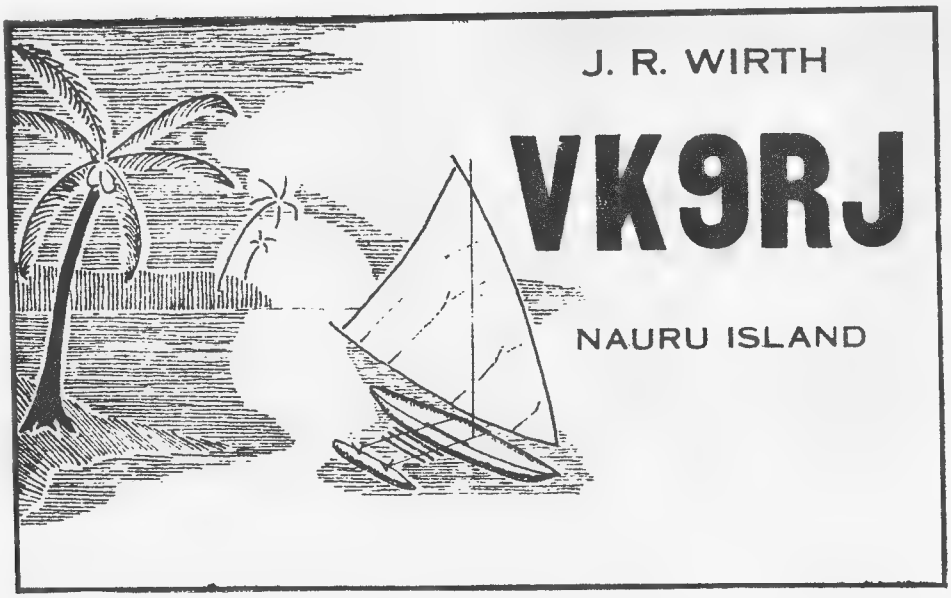
C29ED

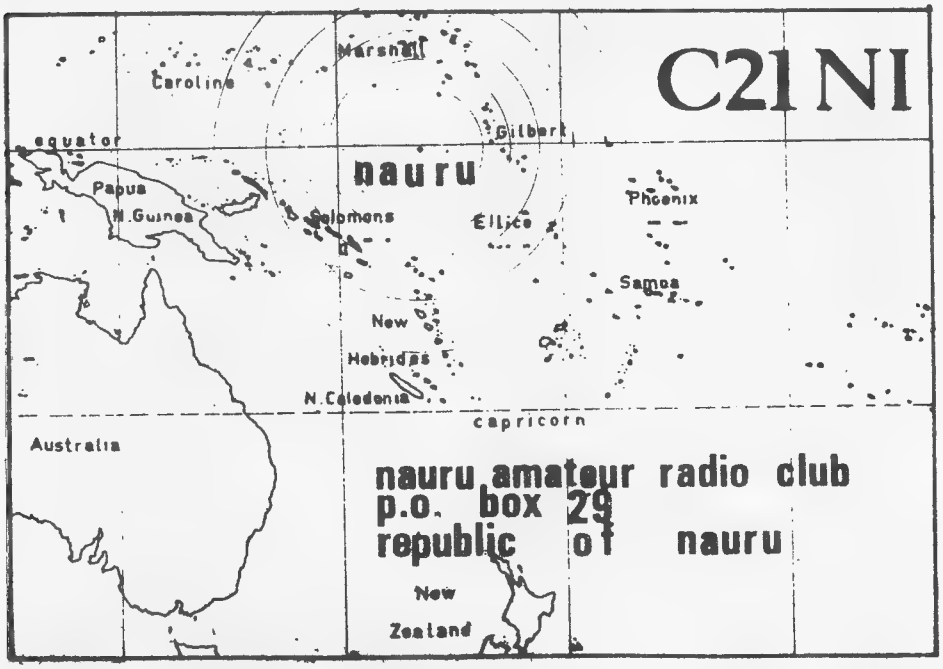
This QSL shows the national flag of the young nation. The colour is deep blue (representing the ocean) and the flag is traversed by a central yellow band that represents the position of the equator relative to the island (represented by a 12 pointed star). This indicates the number of native tribes on the island. The call C29ED was a special issue call, the suffix standing for the Education Department (The writer at the time was the Director of Education on the Island.) The individual call of C21TL was also used. The many thousands of contacts made over nearly two years on Nauru gave many radio amateurs from nearly 200 countries their first CW or SSB contact with the island.

The QSL shown and dated January 1973 was sent to that most successful DX-er Morrie Morris, VK3BZ of Parkdale, Victoria. It was part of several thousand excellent QSL cards donated by his widow, Mary.

VK9RJ

In 1956 the island of Nauru shared the VK9 prefix with three other VK9s (Norfolk Island, Papua and the Territory of New Guinea) although most of the ARRL country





listings of the period were dated January 1957.

The actual announcement of the addition of Nauru to the ARRL countries list was made in the July 1956 issue of QST. The announcement followed as a result of the operation from Nauru by G2RO and the subsequent submission of a confirmation by a DXCC member. DXCC credit was given starting September 1st, 1956 for creditable confirmations dated on or after November 15th, 1945.

It was not until after independence came in 1968 that the numeral prefix C2 was allocated from the prefix block, C2A-C2Z. In fact, the new prefix was quite late in getting on the air as evidenced by the date of the QSL shown. The VK9RJ QSL resulted from a QSO in December, 1968 with Les Catford of Malvern, SA despite the fact that independence had been granted in January of that year. QSL cards with the VK9 prefix were not all that common. Well known was the call VK9RJ used by John Wirth. Jack, as he was generally known, was the wireless operator in charge of Radio Nauru for a few years. He continued on as operator in charge of Radio Nauru for a few years. He continued on as operator of the station after independence using the new call C21JW. This really caused some excitement on the bands. he returned to NSW in 1970. The WIA collection also contains QSLs from Danny Weil's DX-pedition around the world. When on the sloop "Yasme" he came ashore on Nauru in 1956, operating with the call VK9TW. This operation was only a few weeks before the Yasme sank under him after hitting a reef 150 miles from Port Moresby. Danny was the sole mariner on board at the time and was rescued by a Catalina flying boat. Bill Hempel, then VK3AHO (now VK4LC) operated as VK9BH (1963) and Laurie McInnes as VK9AM (1962), but despite these activities VK9 QSLs remained fairly scarce items. Nowadays and particularly since the formation of the Club station C21NI, several native Nauruans have qualified for their amateur licence, thus reducing to a considerable extent the degree of rarity of Nauru in DX circles.

If you would like to play a part in building up the WIA QSL collection and to save something for the future, would you please send a half-dozen (more if you can spare them) QSLs which you feel would really help the collection along.

All cards are appreciated but we especially need commemorative QSLs, special event station QSLs, especially assigned call QSLs (eg VK4RAN), pre-war QSLs, unusual prefixes, rare dx and pictorial QSLs of not so common countries. Could you help? Send to PO Box 1, Seville 3139 or phone (059) 643 721 for card pick-up or consignment arrangements for larger quantities of cards.

Thanks

The Wireless Institute of Australia would like to express its thanks to the following for their contribution of QSL cards towards the Collection:

(Supplementary List)

Albert VK6UA
Frank VK2QL
Austin VK5WO
Brian VK3BBB
Bill VK3AQB

Also the friends and families of the following "silent keys" (Supplementary List).

Alan Costello VK3YT
Ron Hooper VK5NL
John Rankine VK5JF

ar

WIA slow morse transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3RCW Continuous on 144.950 MHz 5 wpm, 10 wpm

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700 MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555 MHz

SILENT KEYS

We regret to announce the recent passing of:-

Mr D R Gill	VK2SH
Mr David Priday	VK2CDZ
Mr R S Fenn	VK3
Mr Eric Cagney	VK4EC
Mr Neil White	VK5WN
Mr F L Brady	VK5AFL

Dudley Ross Gill VK2SH

I regret to announce the passing of Dudley Ross Gill (Doug), late of Port Macquarie and Tamworth.

Doug held the call sign VK2SH for many years and was very active on the bands during the immediate post war period. An ex-Wireless Mechanic in the RAAF 1941/1945, he obtained his AOPC in 1947.

Doug will be well remembered in the Radio Sales and Service Industry going back to prewar days in the Manning River District (Gills' Radio Service) and later in Port Macquarie in partnership with Pete Alexander (Gill and Alexander). He retired about 12 years ago and resided in Port Macquarie. He was 79 years old.

PETER ALEXANDER VK2PA

Eric Cagney VK4EC

On the morning of 1st March 1990 Amateur Radio in Australia lost another true Old Timer and I lost a friend of 40 years, when Eric Cagney passed away quite suddenly. He was first licensed in 1935 and would have been 81 in May.

We met quite by chance at the Rockhampton Showground in 1949. I had been interested in radio since 1932 when, at the age of 11, I built my first crystal set, but Eric said a man was not really "into" radio until he had acquired his ham licence. Before long I was invited to his shack in Bracker Street where he operated a home-brew AM rig running 30 watts to a single 807 feeding a three-element Yagi (also home-brew) on a windmill tower. With this relatively simple equipment (and later with an SSB "grey box" Eric worked the world and won many overseas DX awards. Under his gentle persuasion I finally went for my ticket, home-brewed my equipment and hit the air as VK4FU in November 1953. The late Harold Hobler (VK4DO), the late Bob Greenwood (VK4NG), Bill Dodd (VK4WD), Eric and I formed a group which later led to the foundation of the Rockhampton Radio Club, which used to meet at Rockhampton Airport where Bob Greenwood was employed.

I learnt a great deal from Eric: not so much the technical stuff (which is available from books), but he demonstrated to me the technique of good operating, courteous conduct on air, the importance of a clean signal and the tremendous sense of fellowship which exists among hams worldwide. It must also be recorded that our friendship extended to our wives and families and our homes were always open to each other. Eric's wife, Thelma, died some years ago and he never quite became reconciled to his loss.

I left Rockhampton in 1955 moving first to NSW and then back to my home state, Victoria, in 1960. Since 1955, on almost every Sunday morning at 0800 local time, Eric and I with, in more recent years, another Old Timer, Bill Beaney VK4BN, have maintained a sked on 20 metres, the last being only five days before Eric's passing.

My wife and I offer our condolences to Eric's son Noel VK4VIS, and to other members of the family.

Vale, old friend and quiet gentleman. I shall miss you more than I can say.

JOHN FULLAGAR VK3AVY

Neil Cameron White VK5WN

Neil was born in Adelaide on 7th May 1917 and lived in the Prospect area until he joined the RAAF in 1941. He had started employment in the State Government — Architect-in-Chief's Department as an apprentice electrician, and was able to continue in the RAAF as a maintenance electrician, seeing service in the Northern Territory and New Guinea.

After the war, he returned to the Architect-in-Chief's Dept and for a while was transferred to the Dept of Labour and Industry, maintaining lifts. Sometime after his return to his former Dept, there was a name change to the Public Buildings Dept, in which he was finally in charge of all State Government lift maintenance, as a Senior Engineering Assistant.

By the time that Neil retired, about 10 years ago, he had developed three major interests: - football from way back — he was a very keen follower of North Adelaide, Amateur Radio and his attachment to his 7 grandchildren — he told many people that he was a lucky man, to have their affection.

Like many other amateurs, his first equipment was all "home brew", but later he was able to acquire some of the commercial gear. He covered most of the bands, and when the VHF group formed, he was their first Chairman, and was very keen on 6 metre contacts. Later he built his own 160 metre transmitter, and used that band for the Sunday morning broadcasts.

A lot of time was spent in helping with the setting-up of the Burley Griffin building.

Neil played bowls for Hawthorn Bowling Club for about 6 years, until a stroke took him "out of action" and, unfortunately, he had numerous sessions in hospital over the last few years, but he always looked forward to the Sunday morning contacts with Ossie Scott and Alan Haines.

He died suddenly on reaching his younger daughters' home at Tecoma in the Dandenongs on 24th February 1990. To Joan, his widow, and the family we extend our sincere sympathy.

CLIFF MOULE VK5CX

Kenneth Davidson Gott VK3AJU

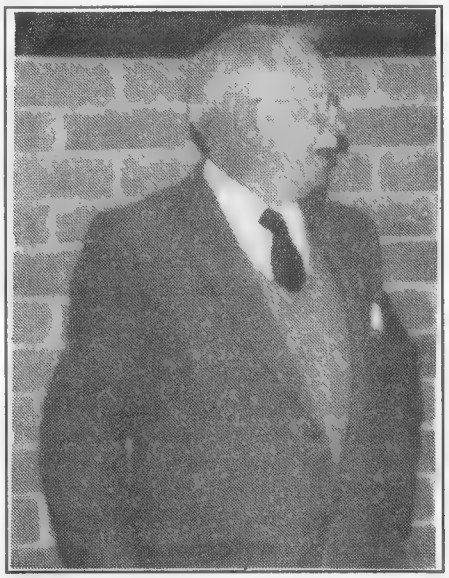
Ken was born at Moreland, Victoria in 1923. He never knew his father, who was reported "killed at sea" soon after Ken's birth. "I didn't mind not having a father, other kids' fathers beat them".

As a schoolboy at Stewart St State School and Northcote High, he set up a telephone link with his mates along the back fences of Blyth St, East Brunswick. He built crystal sets and simple radio sets.

At Melbourne Boy's High (1939-40) his talents for writing and debating came to the fore, although a continuing interest in fireworks led him to organise an explosion while on a geology excursion to Lilydale.

At the University of Melbourne (1941-7) he edited the weekly newspaper, Farrago, and the Melbourne University Magazine. He was active in many student activities — debating, the Labor Club, the Fine Arts Society, the Free Thought Society. His poor eyesight resulted in his rejection from the Army, but he helped to organise student war-work, and himself worked in the Ardmona cannery during vacations. He also worked as the Herald University correspondent. "If there's no news around, a good journalist will go out and make some".

He graduated BA Hons in Economics in 1947, and later took out a Diploma of Journal-



Kenneth Gott

ism, then worked as a journalist and economic consultant until 1965.

He spent 1948-9 in London, where he married a fellow student, Beth Noye, who was studying at London University for a PhD in Botany. Worked in the BBC newsroom, then went to Prague as editor for the International Union of Students, until 1952. Returning to Australia, he worked in the Melbourne bureau of West Australian Newspapers, as a National feature writer for "The Australian", and contributed regularly to "The Bulletin", "Nation", "Straits Times" (Singapore) and others. He also published a number of books.

During these years their three children — Margaret, Jim and Miranda were born.

In 1965, he went to New York as Editor for Business International Corporation, a research and publishing company servicing international business, and in 1970 to Hong Kong to set up their Asia-Pacific office, returning to New York in 1976.

He returned to Australia in 1978 as a policy analyst for Conzinc Riotinto Australia, retiring in 1983, but continuing to work as a consultant for various companies and organistions, and only now found time to return to his interest in amateur radio.

At the time of his death he was looking forward to once again taking a leading part in the John Moyle contest from his base near Kinglake, and was hoping to repeat his success of 1989.

He is survived by his wife Beth, three children and three grandchildren.

Whatever he did in life, work, politics or hobbies, he entered into with his whole being.

Beth Gott

OVER TO YOU

All letters from members will be considered for publication and should be less than 200 words.
The WIA accepts no responsibility for opinions expressed by correspondents.

Import Costs Again

After reading the story in our journal (Over to You) about "Mr Blatant Greed", I thought you had better show your readers the other side of the coin.

Last year I decided I needed a new ATU so after reading all the HAM journals I could find, to see what was the best ATU around, I found one MFJ 789C V tuner and the price was $339.00 US. One phone call and a Visa number, it was on its way.

It arrived via customs on 9/8/89; letter in mail to say collect your ATU from Tradex, at the airport. I arrived the next day at Tradex, collected the ATU, and went next door to Customs. This was the cost.

Customs value	$450.32
Duty 21%	$94.57
Freight	$69.00
Storage	$25.00
Sales tax 20%	$130.77
	$769.66

The above price does not included going to the airport or having a day off work to collect it. Why a day off work, you ask? Well,Tradex the custom agent, charges $25.00 per day storage. I've enclosed all receipts of the above for 100% proof to the editor. The MFJ789C is advertised in Australia now for $756.00 so sending overseas for ham gear is now out of the question.

John Fleming VK3CJF
71 Norma Cres, Knoxfield, 3180.

VNG & CB Amateur Ham Etc — Feb 90

No doubts Dr Leiba is good at her chosen profession, but understandably biased in regards to the benefits of VNG frequencies. I and many others consider it only causes interference to the well tried WWV, with all the associated information. It does not even give you the "simple time" when you want it — unlike WWV, and useless as regards checking radio propagation. The need for accurate time keeping has been covered by WWV for years. In my experience WWV was first on any check list to be used for Time Signals or Navigation, both ground and Astro. I was never out of communication and never lost, and now retired gracefully in one piece-so it must have worked. The time signal concept is OK — perhaps back on 7.5 MHz. At present it is only interference to something which is very useful to Radio.

To Ted VK4YG (same issue page 58) I am a "HAM" and have a "HAM" Licence, and am as good or better than most "HAMS" depending on which mode you mention. Only ex CB operators QSL on phone Ted, but I QSL on CW. I "ROGER" but never "ROMEO" (CB AGAIN), and have never been out of communication. We all have our problems Ted — some, bad phonetics, some, bad CW — and some when mobile, calling on the wrong frequency (?) Let it lie Ted, and concentrate on WICEN.

G. W Lanyon VK2AGL
16 Hilton Ave, Roselands 2196

Knockers

How many members are there in the VNGKO which seems to have now surfaced in Australia after a long period of residence in New Zealand? January 29th saw the demise of a sheet of Teletext which had been running for nearly three months. Facts were presented which gave the non-Amateur a distorted view of the issues involved with shared frequencies. This I take was the birth of the VNG Knockers Organization.

Now to my amazement AR Jan 90 carried a letter from an overseas member of VNGKO. D H Watkins VK2DDR must have impaired vision not to have seen the excellent articles in AR for March '89 and November '89. All the questions were answered and I am very sure that a letter to Honorary Secretary of the VNG Users Consortium would have been answered with great clarity almost by return mail. The letter in AR Feb '90 from the Hon Secretary enlarges on earlier articles so I would expect all to be clear by now. Page 61 Jan '90 had further information on the coding of the signal of VNG which with a one chip demodulator would enable a simple computer (Vic20) to display on screen the seconds, minutes, hour of day, as well as the day number in the year. Now what else could be wanted — oh yes a signal could be sent to other equipment to use the information thus decoded.

R Ian Henry ZL1BKZ-VK4BKO
27 McRae Rd, Mt Wellington, Auckland 1106 NZ

Field Day Rules (1)

I was disappointed to read of the removal of periodic reworking of FD stations from the John Moyle Field Day. For years we have requested the Federal Contest Manage to bring VK rules into line with ZL rules in this respect; to reduce the confusion caused, and to increase the enjoyment for all taking part.

These requests, among others, were obviously ignored. This FCM has chosen instead to change the rules without any prior warning or consultation to participants; to remove the VHF distance multipliers; to restrict operation to "local" stations only; to further reduce participation in the John Moyle by setting up his own VHF Field Day; and finally, to permit only one contact (per band) with each station taking part.

I have been an active participant in the JMFD for many years. It was one of the most enjoyable and challenging contests in the VK contesting year... much of the thrill is in planning and establishing a competitive effort; or in pulling a long-distance VHF contact out of the noise. Frank is obviously not aware of how little activity there is in this contest. As an experienced contester he should know the frustration of calling into a dead band!

I do recognise that it is never possible to please everybody. Does it seem unreasonable to circulate ideas for rule changes via the Contest column for comment first? (and to amend rules only after due consideration is given to the responses). Finally, contesting in

VK already suffers from much confusion and too many rule changes. For heaven's sake, when we do finally come up with a common sense set of rules, leave them alone!

GEOFF HUDSON VK3CGH
16 FOWLER ST, BOX HILL STH 3128

Field Day Rules (2)

The unimaginable has occurred, it would appear that the very successful North East Radio Group, (the NERGs) — VK3CNE will not be participating in the John Moyle Field Day this year. This will be the first time since the inception of the group that this activity will be missed, and the reason? Another rule change! And what a change.

This year there will be no repeat contacts allowed with other field stations, why not? From discussions with the contest manager it would appear that as he was instructed to allow overseas QSOs by the Federal Convention he decided that this should be like other overseas contests and only allow one QSO per station per band.

Two issues come to mind; one is the effect on this contest, the other is the method used to change contest rules. Operators will sit around for hours searching for QSOs in the field day. Last year there was such low activity that operators were falling asleep! With this reduction in possible QSOs there will be no point in setting up a station. This will become another WIA contest killed off by rule changes.

You may think that a strong statement but it is true. Look at the participation rates in all the WIA sponsored contests over the last few years. Included are the RD, VK/ZL/O, Novice and John Moyle. Falling activity is not being experienced by other contests, the CQ Worldwide for example is continually growing, WHY?

The answer is, not just that the rules don't change much, but that the contest is fun and a challenge and any rule changes are made to improve these elements of the contest. When is a contest fun and a challenge? When there are more QSOs possible than you can make, so improvements in your operating style, equipment and technique will net more QSOs. I can give an example of what I mean, some years ago the RD contest had an open section which meant just that — all bands all modes, along with a one hour rework period on VHF. This meant that an operator would decide on an HF band and "run" QSOs there, but he would have to keep an ear on VHF as well and every hour or so run through all the repeat QSOs on VHF. This required skill and was a real challenge, therefore that year many operators stayed up for the full 24 hours and were rewarded with over 2000 QSOs. Then the rule changes came, with no real explanations,

- No combining HF and VHF — now 2 separate categories.
- Rework time out to 3 hours.

Result? Less activity! What were the rule changes aimed at? There was talk of the inequity of country versus city operators as there was little VHF activity in the country, no mention of lower HF noise in country, or relative average size of land or height above sea level, relative income and family tolerance levels. Let's face it, some have good contest locations and some don't and we will never achieve a truly equitable contest. But changing the rules so that there are less possible QSOs means that there is no incentive to improve, thus no challenge and activity drops off, just as in the RD contest.

Changes in rules for other contests have also seen a drop in activity, so what to do? Have a set procedure for changing rules. Simple, but it is not done currently. I have been a contest manager and to change a rule all I had to do was submit the altered copy for publication in AR — that was it! No discussion, no consideration of the operators, just change it. Rules for WIA contests are usually published the month before, thus there is no chance to debate changes or have points clarified. There should be a fixed method for changes to WIA contest rules. This should be a two step approach, firstly to get the rules back on track and then to make sure they stay there. The following is offered as suggestion.

1. The WIA establish a committee of actual WIA contest operators and have them review the current rules of all WIA contests.
2. The committee identify changes to the rules to steer the contests back to their original courses.
3. The proposed changes be widely publicized in AR and copies sent to past and present participants calling for comments.
4. Clubs be requested to conduct "contest forums" where the new rules are discussed.
5. The information gained from 3 and 4 be digested by the committee and altered rules again produced for comment.
6. After a suitable period final rules are produced and published for all WIA contests, perhaps in a special document along with sample log sheets, dupe sheets and cover-sheets.

That would perhaps help to get participation back. Any further rule changes would have to go through a similar process which may take twelve months but the changes may then be for the better and not just because a small vocal group perceived some inequity.

A set of evaluation criteria should be established to help determine if the changes are valid and desirable. The first criterion for any change must be, "Does it improve the contest for the majority of operators?" The change to the JMFD which removes repeat QSOs for field stations loses on this test!

Well, contestants, x-contestants and would be contestants, what do you think? Are you sick of the continuous changes to the rules? Let your division and the executive know of your concerns and let's see if we can improve the WIA sponsored contests.

GREG WILLIAMS VK3VT
1 NOORABIL COURT, GREENSBOROUGH 3088

Discrimination?

Having just read, and substantially agreed with, the News Editor's comment in March, I am moved to add my "two bob's" worth to what Jim, VK3PC, has to say about discrimination within our ranks.

Although now over 60, I am in no sense an "Old Timer" , having only gained my Novice Licence in mid-1988 and the "Full Call" later that year.

The point I wish to make is that I think the WIA is itself culpable of practising "Ageism".

I refer to what seems to me the elitist way in which entries are listed in the Australian Radio Amateur Call Book. For each State, two letter call signs are given precedence, in their own special section, at the beginning of each State's entries.

As a matter of practical everyday use of the Call Book, this method of listing is most frustrating and time consuming because, after first deciding in which of the two lists a call sign will be, we then have to find the start of the appropriate list and then find the actual entry. A nuisance — especially in mid-QSO.

Although not limited to "Old Timers", two letter calls are mainly the privilege of those who have been licensed for a very long time and I think that, simply by the continued allocation of such a call sign, recognition rightly is given to this fact. However, providing precedence by separate entries in the Call Book, apparently because of this, is elitist in the extreme and definitely discriminates against those who are not so favoured.

This furthers an undesirable "Them" and "Us" division of the WIA membership as a whole and, as a member, I most strongly object to this. What do others think?

DENNIS G BATES VK3DGB
9 GLENALVA PARADE,
CANNONS CREEK 3977

(The 1985-86 Callbook was in fact listed with mixed two and three letter calls, and this is the sequence provided in most computer list-sorting programs. We received so many complaints, not all from two-letter calls, that we re-wrote the sorting program to put the two-letter callsigns first. Ed)

Roger Rejoins

(Reprinted with writer's permission. Was also read on VK2 broadcast.)

OK. I give in! I'm joining the Institute again.

Federal has regained us the use of 50 MHz, my all-time favourite band. Something is being done about member services on a national basis. Amateur Radio magazine is showing signs of improvement. There's active dialogue and discussion about the future of the hobby. The NSW Division is taking a "commercially aggressive" approach to attracting members, and keeping them — with good quality, informative Sunday broadcasts, regular Institute-sponsored "events" and contests, special of-

fers for members, new beacons and UHF repeaters, etc. The Institute is showing signs of Life!

Please accept the enclosed 3-year payment for full member subscription. 73.

ROGER HARRISON VK2ZTB
347 DARLING ST BALMAIN 2041

SE Asian Piracy

I thank Barry McNeil VK2FP for providing us with some first hand information of the regulatory situation in Indonesia and Singapore.

However the 2m handhelds are not the focus of my complaint.

The bone of contention involves 10 m base stations — they have a 10 kHz spacing and a power in the range of 10 to 25 watts.

We would like to know the manufacturer and suppliers of these sets.

Regarding the laissez-faire regulatory situation which appears to apply in SE Asia, Barry takes the view that nothing can be done.

My thinking is slightly different.

Most countries, in the Pacific Basin are signatory to the ITU convention and maintain well disciplined regulatory structures. Countries such as in SE Asia who flout the convention will always be in the minority.

Legitimate users of the spectrum who are interfered with eg VK amateurs will complain. Continued pressure in the form of these complaints generally produces results in the long term.

What we are talking about here is not just a minor breach of the convention — we are talking about the flagrant disruption of a complete HF allocation — which I have not seen previously in 40 years of amateur radio.

As Barry points out, it is a massive problem — but I cannot see that we have any option but to tackle it.

If you do nothing you get precisely that.

Melbourne is within single Hop F2 distance of all the countries involved — this means all of Southern Australia is right in the firing line. It is very much a VK problem.

A concerted campaign is required by amateur societies in the region, and needs to be organised.

I am not new to this business — I spent many long hours back in 1958-59 in the fight to save 6 m from CH O. The records of my work are in the Institute files.

Nonetheless I feel it is time for the younger generation to come forward and do their bit.

IAN BERWICK VK3ALZ
107 LOONGANA AVE, GLENROY 3046

Ten Metre Activity

Recent letters lamenting the present state of the 10 metre band are interesting.

Graham Muirhead says "We VKs have only ourselves to blame", but the problem may be a bit deeper than that.

If we use long-haul 6 metre DX as our measuring stick, then this present sunspot cycle, even if it were to stop dead tomorrow, is probably the most remarkable in the history of radio, and certainly the most remarkable since WW 2, all 4 of which(Cycles 19 through 22) I have enjoyed.

In 1968/69, during Cycle 20, the 10 metre band most mornings was packed full of K and W stations, all strength 7 to 9.

One could work almost any state of the union simply by asking for it. During a contest, Yanks could be worked at 3 or 4 a minute, up to around 200 an hour, for hours on end, as my log books testify.

But try and do that today! The silence on the band is deafening! The US beacons are often heard, and a handful of regulars front up now and then at good signal strength, but overall activity is literally not one hundredth part of what it used to be. And all of these remarks are true, perhaps to a lesser degree, of Europe in the evenings.

I can't work out why. Are TVI-RFI problems endemic? They tell me that linears sold in the States have 10 metres disconnected to foil CB operators. Is that the reason? Or is it all those Asian intruders that have so effectively revealed our Intruder Watch for the paper tiger it is?

Fellow hams! Lend me your ears? Consult your propagation predictions! Rotate your antennas! Set yourselves down in front of those rigs, and call, call, call!!

AL RECHNER VK5EK
404 ESPLANADE, MOANA 5169

Intruder Watching

I'd like to suggest an aid to Intruder Watching in VK.

It is without a doubt that we have now the most efficient and effective means of passing written information, the International Packet Radio/Amtor Network. A WIA BBS could be set up primarily for intruder reports ... Many of us will hesitate to go to the trouble of writing out a report, putting it in an envelope, and posting it, when a few strokes on the keyboard would suffice, and get the information there quicker!

I've spent the last couple of years in & out of Asia, and monitored the bands up there. Being familiar with a number of Asian languages , I'm getting fed up with rumours and hearsay mainly from people who want to dob in their favorite 'scapegoats'! Let's get to the truth of the matter, and find out who and when and where and why!

Comments, please!

PETER ROBINSON VK4DFR
23 MASON ST, STRATFORD 4870

Blatant Greed Again?

I refer to John Wooding's letter on the above subject in your March issue of AR.

I wholly support his views and comments concerning the prices quoted by Australian dealers in respect of 572G radio tubes.

My FL2100Z amplifier has been out of action for months due to the want of two such tubes. My last quote from an interstate city dealer, about six months ago, was $239 each, to which I commented — "You're joking".

At about the same time, the purchase price in the US was given as $US95 each, and in England as £60 (about $A120). So, now they cost $395 each (in Australia)!

At this rate of increasing cost they should retail at around $700 each, in about twelve months time!

Does any keen ham want a FL2100Z amplifier in excellent working order — going very cheap? (Purchaser to supply own tubes of course.)

(By now you have seen the letter from VK3ZJF in April, quoting $211 approx for a 572B. Not quite so bad!! Ed)

V H A MCBRATNEY VK5YD
PO BOX 151, BLACKWOOD 5051

VCR TVI — Possible Solutions

VK2COX asked in the February issue of AR for solutions to tape playback related TVI. It seems to be the transmitted RF getting somehow to the very low-level video tape playback preamplifier, which causes his troubles. The VCR records video on tape using a kind of FM covering frequencies from a few kilohertz up to about 7 MHz. Signal levels are some tens of millivolts.

The coupling in his case seems to be via power lines. Thus a good RF choke in his transmitter power leads and in each recorder's power leads and in any other leads coupled to the VCRs should help. The power or signal lead wrapped about ten turns around a good ferrite bar or two U-shaped cores together should be enough. The transmitter should be grounded separately from main power to cold water metal pipes or to some similar good ground. Main point is not to let the RF to go to the power lines in any form, neither conducted or coupled.

SAKARI MATTILA OH2AZG & VK3TJE
LAAJALAHDENTIE 26B25
SF-00330 HELSINKI FINLAND

Roger Romeo

Lindsay Lawless VK3ANJ states that ROGER has been superseded for several years by ROMEO (AR, April). I was aware that the NATO phonetic alphabet was amended to delete Roger and substitute Romeo. However, that does not necessarily mean that there is an automatic alteration to any "prowords". To settle a bet and possibly improve my operating skill, please tell us Lindsay, your authority for this statement.

BOB JACKSON VK7NBF
FALMOUTH HOUSE, FALMOUTH 7215

HF PREDICTIONS

ROGER HARRISON VK2ZTB

May Charts

For ease of use and to accommodate space restrictions in the magazine, I have provided predictions applicable for three major regions of Australia:

VK EAST. Covers the major part of NSW and Queensland.

VK SOUTH. Covers southern-NSW, VK3, VK5 and VK7.

VK WEST. Covers the south-west of West Australia.

For each of these regions I have selected six "terminals" to major continental regions of the world, or regions of particular interest, such as Australian Antarctica (VK ANTARCTIC). From time to time, I will include predictions to cover particular DXpeditions or other activities of special interest. This month, following a number of requests, I've included predictions for the long path to Europe, first introduced last month.

Feedback from readers and users would be most appreciated - let me know what you feel is wrong, and what's right, about the paths, presentation or any other aspect.

The charts

These charts are different from those you see published elsewhere, and arguably more useful to the amateur fraternity as they give, effectively, the predicted signal/noise ratio for each hour and for selected bands.

The charts are organised in 24 rows, one for each hour UTC (first column on the left). Don't forget to add the appropriate number of hours for your time zone, including daylight saving where it applies. The next column give the MUF (maximum usable frequency) for each hour, followed by the field strength at the MUF, in decibels referred to 1 uV/metre (dBU). The column marked FOT gives the "optimum" frequency - the most reliable frequency for the path.

Then come five columns, one for each of five selected HF bands. The numbers in the column represent predicted field strength at each hour in decibels referred to 1 uV/metre. Here it represents "raw" signal to noise ratio as urban noise levels are typically 1-2 uV/metre, but does not take into account the advantage offered by particular transmission modes. The results are based on a transmitter power of 100 W output (except where noted later), the use of modest 3-element beams or similar, and for "median" conditions. Where the results fall below -40 dB, no output is printed.

Enhanced conditions may improve S/N ratios by 9-15 dB. The use of CW or digital transmission modes show better results than SSB. If you've got 400 W output, you get a 6 dB improvements. Where conditions warrant it, I have include predictions for the bands below 14 MHz, deleting the upper bands.

Europe, Long Path

The long path predictions for Europe, which means you can have contacts during daylight hours here, show some interesting results for May. The charts for VK East and VK South have been calculated with the 'standard' parameters - 100 W, median conditions. However, the VK West chart has been calculated using 400 W power and assuming 'good' conditions (10 percent of the time). And the signal strengths aren't all that good even then! So, take heed. If you live in the west, you'll need maximum legal power, a beam and good prevailing conditions to get through.

The predictions are calculated using a program known as"FTZ", for IBMs and compatibles, distributed by FT Promotions. If you want to know more about this program, call (02) 818-4838. **ar**

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	16.0	-21	11.5	...	...	-29	-15	-12
2	15.8	-26	11.4	...	...	-35	-19	-14
3	16.2	-29	11.7	...	...	...	-22	-16
4	17.7	-27	12.5	...	...	...	-25	-17
5	20.0	-22	14.6	...	...	...	-29	-19
6	22.0	-17	16.1	...	...	...	-31	-19
7	23.6	-13	17.3	...	...	...	-30	-19
8	24.2	-10	17.8	...	...	...	-26	-16
9	23.9	-9	18.2	...	...	...	-20	-12
10	21.7	-9	16.5	...	...	-33	-15	-10
11	19.4	-9	14.7	...	...	-23	-10	-8
12	17.6	-8	13.3	...	...	-15	-8	-8
13	16.3	-6	12.3	...	-31	-9	-6	-9
14	15.4	-3	11.6	...	-19	-4	-5	-10
15	14.8	0	11.1	-34	-7	0	-4	-11
16	14.1	5	10.7	-11	4	5	-3	-14
17	13.6	8	10.3	6	12	7	-4	-16
18	12.3	10	9.4	13	14	5	-10	-25
19	10.9	11	8.4	16	13	0	-19	-38
20	10.7	13	8.3	19	15	0	-21	...
21	13.9	13	10.8	23	21	12	-1	-15
22	18.0	9	13.0	-18	3	11	9	4
23	17.4	-2	12.3	...	-31	-7	-2	-4
24	16.8	-12	12.0	...	...	-21	-10	-9

VK EAST — EUROPE S.P.

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	16.9	-10	11.9	...	...	-18	-8	-8
2	16.6	-19	11.8	...	...	-29	-15	-12
3	17.1	-23	12.1	...	...	-39	-20	-14
4	18.9	-22	13.1	...	...	...	-24	-16
5	21.4	-18	15.3	...	...	...	-29	-18
6	23.7	-14	16.9	...	...	...	-32	-20
7	25.4	-11	18.2	...	...	...	-33	-20
8	25.5	-11	18.7	...	...	...	-28	-17
9	22.3	-13	16.7	...	...	...	-23	-15
10	19.0	-16	14.2	...	...	-36	-18	-13
11	15.9	-19	11.9	...	...	-26	-14	-13
12	13.5	-21	10.0	...	...	-18	-13	-16
13	11.8	-19	8.8	...	-30	-13	-14	-21
14	11.1	-15	8.2	...	-19	-11	-17	-27
15	10.9	-8	8.2	-32	-10	-8	-18	-31
16	11.0	1	8.2	-11	0	-4	-18	-33
17	11.1	8	8.3	7	9	-1	-18	-35
18	10.4	10	7.9	12	11	-3	-23	...
19	9.7	11	7.[illegible]	16	10	-7	-30	...
20	10.0	13	7.7	18	12	-5	-28	...
21	12.7	13	9.3	22	19	8	-8	-23
22	17.7	12	13.6	25	25	20	11	2
23	18.5	10	12.9	-9	9	14	11	6
24	17.8	1	12.5	...	-21	-2	1	-1

VK STH — EUROPE S.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.8	6	11.0	5	-9	-23	...	...
2	15.8	4	12.6	6	-1	-11	-26	...
3	17.8	4	14.2	7	3	-3	-15	-28
4	19.5	4	15.6	7	6	1	-8	-19
5	20.6	4	16.6	7	7	4	-4	-14
6	21.4	5	17.2	8	9	5	-1	-11
7	21.7	6	17.5	10	10	7	0	-9
8	21.6	7	17.4	14	13	8	1	-9
9	21.2	11	17.1	22	17	11	1	-10
10	20.3	12	16.4	24	17	9	-2	-14
11	19.2	10	15.5	22	13	4	-10	-25
12	17.0	10	13.5	18	6	-6	-22	...
13	14.7	10	11.6	12	-4	-19	...	...
14	12.9	10	10.0	5	-16	-36	...	...
15	11.5	10	8.9	-3	-28	...	...	...
16	10.9	10	8.3	-8	-35	...	...	...
17	10.6	10	8.0	-10	-39	...	...	...
18	10.5	10	8.0	-10	-39	...	...	...
19	10.3	10	7.9	-12	...	...	...	...
20	9.7	10	7.5	-18	...	...	...	...
21	9.1	10	7.1	-24	...	...	...	...
22	9.3	10	7.4	-21	...	...	...	...
23	11.0	10	8.7	-7	-34	...	...	...
24	12.4	10	9.8	3	-17	-37	...	...

VK WEST — EUROPE S.P.

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	18.9	-1	12.9	...	-33	-8	-2	-2
2	18.2	1	12.5	...	-23	-3	1	-1
3	17.6	3	12.1	...	-12	2	3	0
4	16.7	5	11.6	-29	-4	5	4	0
5	16.5	7	11.5	-18	2	8	5	0
6	16.9	9	11.8	-8	7	11	7	2
7	18.6	8	13.1	-16	4	11	9	5
8	19.8	3	14.8	...	-12	2	4	1
9	16.6	-5	12.3	...	-28	-8	-5	-7
10	14.1	-17	10.4	...	...	-17	-11	-14
11	12.3	-30	[illegible].1	...	...	-21	-15	-16
12	11.4	...	8.4	...	...	-23	-16	-17
13	11.2	...	8.4	...	...	-36	-25	-25
14	11.2	...	8.3	...	...	...	-32	-31
15	11.2	...	8.4	...	...	...	-38	-36
16	10.5	...	7.9	...	...	...	...	...
17	9.8	...	7.4	...	...	...	...	...
18	10.1	...	7.8	...	...	...	...	...
19	12.8	...	9.3	...	...	...	-25	-22
20	17.8	-22	13.7	...	...	-40	-21	-15
21	22.5	-11	15.6	...	...	...	-20	-12
22	21.3	-7	[illegible].7	...	...	-29	-13	-7
23	20.5	-4	[illegible].1	...	...	-19	-7	-4
24	19.6	-3	13.4	...	...	-13	-4	-3

VK EAST — EUROPE L.P.

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	17.7	-5	12.3	...	-37	-11	-4	-5
2	17.1	-1	11.9	...	-22	-4	-1	-3
3	16.6	3	11.6	-39	-10	2	2	-2
4	15.8	5	11.1	-22	-1	6	3	-3
5	15.6	7	11.1	-14	3	7	3	-3
6	16.0	8	11.4	-7	7	10	5	-2
7	17.4	8	12.5	-14	4	10	7	2
8	19.4	2	14.0	...	-10	3	4	0
9	16.3	-4	12.7	...	-23	-6	-5	-8
10	14.0	-14	10.8	...	-34	-13	-11	-15
11	12.4	-25	9.5	...	...	-18	-14	-18
12	11.6	-34	8.8	...	...	-20	-15	-18
13	11.3	...	8.9	...	...	-29	-22	-23
14	11.2	...	8.6	...	...	...	-32	-32
15	11.0	...	8.5	...	...	...	...	...
16	10.4	...	8.1	...	...	...	...	...
17	9.7	...	7.6	...	...	...	...	...
18	10.0	...	7.9	...	...	...	...	...
19	12.0	...	9.2	...	...	...	...	...
20	16.0	-30	12.7	...	...	...	-22	-16
21	20.9	-18	14.9	...	...	...	-25	-17
22	20.1	-17	14.1	...	...	...	-23	-15
23	19.2	-14	13.4	...	...	-34	-16	-11
24	18.4	-9	12.8	...	...	-21	-9	-7

VK STH — EUROPE L.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.4	...	10.0	-36	-17	-15	-17	-23
2	12.1	...	9.7	-37	-19	-17	-19	-26
3	12.4	...	9.8	-36	-17	-15	-17	-23
4	13.3	-38	11.0	-29	-9	-6	-9	-13
5	15.0	-21	11.8	-26	-3	2	-1	-5
6	15.8	-18	11.3	-28	-5	2	1	-3
7	15.5	-15	11.2	-22	-1	3	1	-4
8	14.9	-11	10.8	-15	3	5	0	-6
9	14.9	-2	10.9	-5	8	7	0	-8
10	15.1	-2	11.1	-5	8	8	1	-7
11	16.0	-12	11.4	-22	-2	4	3	-3
12	17.6	-13	13.0	-34	-11	1	4	1
13	18.6	-13	13.8	-40	-15	-3	3	2
14	17.8	-17	13.5	...	-15	-2	2	0
15	17.0	-21	12.8	...	-14	-2	2	-1
16	16.3	-23	12.2	-39	-12	-1	1	-2
17	15.5	-26	11.7	-36	-9	-1	0	-3
18	14.9	-29	11.3	-35	-8	-2	-2	-5
19	13.5	-40	10.3	-32	-9	-6	-7	-11
20	11.8	...	9.1	-29	-14	-13	-15	-21
21	11.6	...	9.0	-22	-9	-9	-12	-19
22	13.2	-28	10.8	-19	-2	-1	-4	-10
23	13.0	-38	10.7	-27	-8	-6	-9	-14
24	12.7	...	10.4	-32	-13	-11	-13	-19

VK WEST — EUROPE L.P.

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.2	-9	9.7	-7	-12	-20	-34	...
2	12.6	-14	9.6	-10	-11	-17	-28	...
3	12.2	-22	9.4	-16	-14	-18	-28	...
4	15.9	-15	12.4	-21	-12	-12	-17	-25
5	23.4	-7	18.1	-30	-13	-8	-7	-9
6	30.0	-4	23.0	-35	-14	-7	-3	-3
7	28.9	-4	21.6	-34	-14	-7	-3	-4
8	26.4	-4	19.8	-28	-11	-5	-4	-5
9	23.2	-4	17.3	-20	-8	-4	-5	-9
10	19.8	-5	14.8	-15	-6	-5	-9	-15
11	16.6	-6	12.4	-10	-6	-8	-15	-25
12	14.1	-6	10.5	-6	-7	-13	-24	-38
13	12.4	-3	9.2	-3	-9	-19	-34	...
14	11.6	4	8.5	1	-11	-24	...	...
15	11.4	10	8.4	4	-11	-25	...	...
16	11.5	12	8.5	5	-10	-25	...	...
17	11.4	14	8.5	6	-10	-26	...	...
18	10.7	15	8.1	4	-14	-32	...	...
19	10.0	15	7.6	0	-19	-38	...	...
20	10.3	15	7.9	2	-17	-35	...	...
21	11.2	15	8.6	5	-12	-28	...	...
22	10.5	11	8.1	1	-16	-33	...	...
23	9.9	1	7.7	-5	-20	-37	...	...
24	10.1	-8	8.0	-8	-19	-32	...	...

VK EAST — AFRICA

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	11.7	-3	8.9	-23	-5	-4	-14	-27
2	12.1	-6	9.3	-38	-12	-5	-12	-21
3	11.8	-14	9.1	...	-22	-10	-14	-22
4	15.4	-10	11.9	...	-35	-12	-9	-12
5	22.6	-5	17.5	...	...	-21	-8	-5
6	28.3	-3	22.3	...	...	-26	-9	-4
7	26.7	-4	21.3	...	...	-26	-10	-5
8	24.5	-5	19.4	...	...	-22	-8	-4
9	21.7	-5	17.7	...	...	-17	-7	-5
10	18.8	-6	14.7	...	-40	-13	-6	-7
11	15.9	-8	12.3	...	-31	-10	-8	-12
12	13.7	-8	10.6	...	-20	-8	-10	-17
13	12.2	-5	9.4	-34	-10	-5	-13	-24
14	11.5	2	8.8	-10	2	-2	-15	-29
15	11.2	8	8.8	8	10	0	-16	-33
16	11.1	10	8.5	14	13	1	-16	-34
17	10.9	12	8.4	17	14	1	-18	-37
18	10.2	13	8.0	19	14	-2	-23	...
19	9.7	14	7.6	19	12	-5	-28	...
20	9.9	14	7.8	19	13	-4	-26	...
21	10.8	14	8.4	21	16	1	-18	-37
22	10.2	14	7.9	20	14	-2	-23	...
23	9.6	9	7.5	10	8	-6	-27	...
24	9.8	1	7.8	-6	1	-7	-25	...

VK STH — AFRICA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	10.5	5	8.1	-2	-17	-33	...	...
2	12.7	1	9.8	0	-7	-17	-33	...
3	16.5	-1	12.4	-3	-2	-6	-15	-26
4	24.3	0	18.8	-9	0	2	0	-5
5	30.3	-1	23.1	-20	-4	1	2	1
6	32.5	-1	24.4	-26	-8	-1	2	1
7	32.1	-2	24.0	-29	-9	-3	1	0
8	31.0	-2	23.2	-28	-9	-3	0	-1
9	29.1	-2	21.8	-25	-8	-2	-1	-2
10	26.6	-2	19.9	-17	-4	-1	-1	-4
11	23.2	-1	17.4	-10	-1	0	-3	-8
12	19.8	0	14.8	-3	0	-2	-8	-16
13	16.7	2	12.4	2	0	-6	-16	-28
14	14.1	5	10.5	5	-3	-13	-28	...
15	12.4	10	9.2	6	-7	-21	...	...
16	11.6	12	8.6	5	-11	-27	...	...
17	11.4	14	8.6	5	-12	-28	...	...
18	11.5	15	8.5	6	-11	-28	...	...
19	11.5	15	8.6	6	-11	-28	...	...
20	10.8	16	8.2	3	-15	-34	...	...
21	10.1	16	7.7	0	-21	...	...	...
22	10.4	16	8.0	2	-18	-37	...	...
23	11.0	16	8.3	5	-13	-31	...	...
24	10.2	13	7.8	0	-19	-38	...	...

VK WEST — AFRICA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	28.4	-1	21.6	-22	-5	0	1	-1
2	28.2	-1	22.0	-24	-7	-1	0	-2
3	28.0	-2	21.2	-25	-7	-2	0	-2
4	27.7	-2	21.0	-23	-7	-2	0	-2
5	27.3	-1	20.8	-20	-5	-1	0	-2
6	26.4	-1	20.1	-15	-2	1	0	-3
7	24.8	0	18.9	-8	1	2	0	-5
8	22.8	2	17.3	4	7	4	-1	-9
9	20.8	6	15.9	15	11	5	-4	-16
10	18.8	8	14.3	17	9	1	-12	-27
11	17.2	8	13.0	16	5	-6	-21	-39
12	16.0	9	12.1	14	1	-12	-30	...
13	15.2	9	11.5	13	-2	-16	-37	...
14	14.5	10	11.1	11	-5	-21	...	...
15	13.7	10	10.4	8	-10	-28	...	...
16	13.2	10	10.0	5	-14	-33	...	...
17	11.9	10	9.1	-1	-25	...	...	...
18	10.4	10	8.0	-12	...	...	...	...
19	10.2	10	7.9	-13	...	...	...	...
20	13.2	10	9.9	5	-14	-33	...	...
21	19.1	5	14.8	12	7	0	-12	-25
22	24.5	1	18.9	-2	5	4	1	-5
23	27.4	1	21.1	-11	1	4	3	0
24	28.1	0	21.5	-17	-3	1	2	0

VK EAST — ASIA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	30.0	-1	22.8	-25	-7	-1	1	0
2	30.8	-1	23.3	-28	-9	-2	1	1
3	31.1	-1	23.4	-29	-9	-2	1	1
4	30.8	-1	23.2	-28	-9	-2	1	1
5	30.3	-1	22.8	-25	-7	-1	1	1
6	29.3	0	22.1	-20	-4	1	2	0
7	27.6	0	20.9	-12	0	3	2	-1
8	25.4	2	19.2	1	6	6	3	-3
9	22.3	5	16.9	14	12	7	-1	-11
10	19.3	6	14.5	16	9	1	-12	-26
11	16.5	6	12.4	12	1	-11	-28	...
12	14.2	7	10.6	7	-10	-26	...	...
13	12.6	7	9.4	0	-21	...	...	...
14	11.8	8	8.8	-4	-28	...	...	...
15	11.5	8	8.6	-6	-31	...	...	...
16	11.5	8	8.6	-6	-31	...	...	...
17	11.5	8	8.7	-6	-31	...	...	...
18	10.7	8	8.1	-12	...	...	...	...
19	9.8	8	7.5	-20	...	...	...	...
20	10.0	8	7.7	-18	...	...	...	...
21	12.9	8	10.1	2	-18	-38	...	...
22	18.4	-3	14.3	-4	-3	-8	-17	-29
23	24.3	-2	18.7	-12	-2	0	-3	-8
24	28.2	-1	21.5	-19	-4	0	1	-1

VK STH — ASIA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	26.1	-1	20.1	-15	-3	1	0	-4
2	27.2	-1	20.8	-20	-5	0	0	-2
3	27.6	-1	21.0	-22	-6	-1	0	-2
4	27.6	-1	21.5	-23	-7	-1	0	-2
5	27.4	-1	20.8	-22	-6	-1	0	-2
6	27.1	-1	20.5	-20	-5	0	0	-3
7	26.5	-1	20.1	-15	-2	1	1	-3
8	25.3	0	19.2	-8	1	3	1	-4
9	23.6	2	17.9	2	6	5	0	-7
10	21.2	8	16.1	22	15	8	-2	-15
11	19.0	8	14.4	20	11	1	-13	-28
12	16.7	8	12.7	16	3	-9	-27	...
13	14.9	8	11.3	11	-5	-21	...	...
14	13.7	8	10.3	6	-14	-32	...	...
15	12.9	8	9.7	2	-19	-40	...	...
16	12.5	8	9.5	0	-23	...	...	...
17	12.1	8	9.1	-3	-27	...	...	...
18	11.8	8	9.0	-5	-30	...	...	...
19	10.8	7	8.3	-13	...	...	...	...
20	9.6	7	7.4	-24	...	...	...	...
21	9.6	7	7.5	-24	...	...	...	...
22	12.4	0	9.3	-6	-24	...	...	...
23	17.8	-4	13.8	-3	-4	-9	-20	-33
24	23.0	-2	17.7	-10	-1	-1	-4	-11

VK WEST — ASIA

UTC	MUF	DBU	FOT	7.1	10.1	14.2	21.2	28.5
1	17.9	3	14.2	-36	-7	4	-3	-24
2	19.8	3	15.7	...	-12	3	1	-16
3	21.3	3	17.0	...	-14	3	4	-10
4	22.3	4	17.9	...	-13	4	6	-7
5	23.0	5	18.4	...	-11	6	7	-4
6	23.2	7	18.6	-35	-4	10	9	-3
7	23.2	10	18.6	-4	13	18	13	-2
8	22.8	10	18.3	14	22	23	14	-4
9	21.3	9	17.2	20	25	22	9	-12
10	18.9	10	15.0	24	25	20	3	-25
11	16.4	10	13.0	25	24	16	-7	...
12	14.4	11	11.1	26	23	11	-19	...
13	12.8	11	9.8	25	19	5	-32	...
14	11.9	11	9.1	24	17	1	-40	...
15	11.6	11	8.8	23	16	0	...	...
16	11.6	11	8.8	23	16	-1	...	...
17	11.4	11	8.7	23	16	-2	...	...
18	10.7	11	8.3	22	13	-6	...	...
19	10.0	11	7.8	20	11	-10	...	...
20	10.3	11	8.1	21	12	-8	...	...
21	12.4	11	9.8	24	18	4	-35	...
22	13.8	9	10.9	12	15	8	-19	...
23	14.6	5	11.5	-9	5	5	-14	...
24	16.0	3	12.7	-20	0	5	-8	-37

VK EAST — VK ANTARCTIC

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	16.2	7	12.8	-8	7	9	3	-6
2	17.7	6	14.1	-19	3	9	5	-1
3	18.9	6	15.1	-23	1	10	7	2
4	19.7	7	15.7	-22	2	11	9	4
5	20.1	7	15.9	-24	2	11	10	5
6	20.4	8	16.4	-16	6	13	11	7
7	20.4	11	16.4	4	16	19	15	9
8	20.1	12	16.2	18	24	23	17	10
9	19.5	12	15.8	24	26	23	15	7
10	17.9	10	14.1	26	26	20	9	-1
11	15.2	11	11.9	27	24	14	-1	-15
12	13.2	11	10.3	27	21	7	-11	-29
13	11.9	12	9.3	25	18	1	-20	...
14	11.3	12	8.8	24	16	-2	-26	...
15	11.0	12	8.5	24	15	-4	-29	...
16	10.9	12	8.4	23	15	-5	-30	...
17	10.5	12	8.2	23	14	-7	-34	...
18	10.0	12	7.8	21	11	-11	-40	...
19	9.4	12	7.4	20	9	-16	...	...
20	9.6	12	7.6	21	10	-14	...	...
21	10.9	12	8.7	23	15	-4	-29	...
22	12.0	12	9.5	26	19	3	-18	-39
23	13.5	10	10.9	18	18	8	-8	-23
24	14.6	8	11.6	3	12	9	-2	-13

VK STH — VK ANTARCTIC

UTC	MUF	DBU	FOT	7.1	10.1	14.2	18.1	21.2
1	13.8	6	11.0	3	10	5	-9	-23
2	15.8	4	12.6	-15	3	6	-1	-11
3	17.8	4	14.2	-24	0	7	3	-3
4	19.5	4	15.6	-32	-3	7	6	1
5	20.6	4	16.6	-39	-6	7	7	4
6	21.4	5	17.2	-38	-6	8	9	5
7	21.7	6	17.5	-31	-2	10	10	7
8	21.6	7	17.4	-17	6	14	13	8
9	21.2	11	17.1	13	22	22	17	11
10	20.3	12	16.4	23	27	24	17	9
11	19.2	10	15.5	27	27	22	13	4
12	17.0	10	13.5	28	27	18	6	-6
13	14.7	10	11.6	28	24	12	-4	-19
14	12.9	10	10.0	27	20	5	-16	-36
15	11.5	10	8.9	24	16	-3	-28	...
16	10.9	10	8.3	23	14	-8	-35	...
17	10.6	10	8.0	22	12	-10	-39	...
18	10.5	10	8.0	22	12	-10	-39	...
19	10.3	10	7.9	22	11	-12	...	...
20	9.7	10	7.5	20	8	-18	...	...
21	9.1	10	7.1	18	5	-24	...	...
22	9.3	10	7.4	19	6	-21	...	...
23	11.0	10	8.7	23	14	-7	-34	...
24	12.4	10	9.8	19	16	3	-17	-37

VK WEST — VK ANTARCTIC

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	28.8	-4	23.7	...	-23	-13	-6	-4
2	27.2	-2	21.9	-38	-15	-7	-3	-2
3	26.0	1	20.9	-21	-6	0	1	0
4	25.0	5	20.0	-5	4	6	5	2
5	24.7	10	19.6	11	14	13	9	4
6	24.2	12	19.2	22	20	17	11	5
7	23.6	11	18.3	23	20	15	8	0
8	22.0	10	16.6	23	18	12	3	-7
9	19.6	11	14.8	22	14	7	-4	-16
10	17.6	12	13.2	19	10	1	-11	-26
11	16.2	12	12.1	17	7	-4	-18	-35
12	15.2	12	11.4	15	4	-8	-24	...
13	14.6	10	11.1	10	0	-11	-28	...
14	13.9	2	10.5	2	-5	-15	-30	...
15	13.4	-6	10.2	-6	-10	-18	-31	...
16	12.2	-19	9.3	-14	-15	-22	-35	...
17	10.7	-33	8.2	-18	-18	-25	-37	...
18	10.6	...	8.2	-21	-18	-23	-33	...
19	13.8	-31	10.3	-29	-18	-17	-22	-31
20	20.0	-17	15.5	...	-22	-15	-14	-16
21	25.9	-11	19.9	...	-28	-17	-11	-10
22	29.4	-8	22.5	...	-30	-18	-11	-8
23	30.0	-7	23.2	...	-31	-18	-10	-7
24	29.5	-6	23.4	...	-28	-16	-9	-6

VK EAST — NTH/CENT AMERICA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	30.1	-2	24.9	...	-21	-11	-4	-2
2	28.7	1	23.2	-33	-12	-4	0	1
3	27.6	4	22.2	-15	-1	4	5	4
4	26.7	8	21.3	1	9	10	9	6
5	26.5	10	21.1	14	17	15	12	7
6	26.2	9	19.8	22	20	17	11	5
7	23.1	9	17.3	22	18	13	6	-3
8	19.7	11	14.7	21	14	7	-3	-15
9	16.5	12	12.3	17	7	-3	-17	-33
10	14.0	13	10.3	12	-1	-14	-33	...
11	12.2	13	9.0	6	-10	-26	...	...
12	11.3	13	8.4	3	-16	-34	...	...
13	11.1	8	8.3	0	-17	-34	...	...
14	11.2	-1	8.3	-4	-17	-31	...	...
15	11.3	-12	8.4	-9	-17	-28	...	...
16	10.5	-26	7.9	-15	-19	-28	...	...
17	9.8	-38	7.4	-18	-19	-27	...	...
18	10.1	...	7.8	-20	-18	-23	-34	...
19	12.8	-34	9.4	-26	-17	-18	-24	-33
20	17.9	-21	13.8	-38	-20	-15	-15	-19
21	23.7	-12	18.2	...	-25	-15	-11	-11
22	28.1	-8	21.4	...	-29	-17	-10	-8
23	30.5	-6	23.1	...	-29	-17	-9	-6
24	31.0	-4	24.0	...	-27	-15	-7	-5

VK STH — NTH/CENT AMERICA

UTC	MUF	DBU	FOT	14.2	18.1	21.2	24.9	28.5
1	28.6	-5	23.5	...	-31	-17	-9	-5
2	27.2	-4	21.9	...	-25	-13	-6	-3
3	26.0	-2	20.8	-40	-16	-7	-2	-2
4	24.9	1	19.9	-26	-8	-1	1	0
5	24.6	5	19.5	-11	1	5	5	2
6	24.1	9	19.1	4	10	11	9	4
7	23.5	12	19.0	14	16	15	11	5
8	22.5	15	17.5	23	21	17	11	4
9	21.5	14	16.6	24	20	15	7	-1
10	19.3	13	14.5	22	16	9	-1	-13
11	16.2	14	12.2	19	9	0	-14	-30
12	13.7	15	10.2	14	1	-12	-30	...
13	12.0	12	8.9	6	-8	-22	...	...
14	11.2	2	8.3	-1	-12	-26	...	...
15	11.1	-9	8.4	-6	-13	-24	...	...
16	11.3	-18	8.4	-11	-13	-21	-34	...
17	11.4	-26	8.6	-15	-13	-19	-30	...
18	10.7	-37	8.1	-18	-14	-18	-28	...
19	9.9	...	7.6	-29	-24	-28	-38	...
20	10.2	...	7.9	-40	-31	-33	...	...
21	13.1	-39	9.7	-31	-17	-15	-18	-24
22	18.6	-22	14.3	...	-23	-15	-13	-15
23	24.6	-12	18.9	...	-30	-18	-11	-10
24	28.8	-7	22.0	...	-33	-19	-11	-7

VK WEST — NTH/CENT AMERICA

HAMADS

TRADE ADS

• AMIDON FERROMAGNETIC CORES: For all transmitter and receiver applications. Send DL size SASE for data/price to RJ & US Imports, Box 157, Mortdale NSW 2223. (No enquires at office please...11 Macken St (Oatley). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Electronic Components, ACT: Truscott's Electronics, Melb: S Willis, Perth: Assoc TV Service, Hobart. Closed first 2 weeks May.

FOR SALE — ACT

• Deceased estate. FT-one TXCVR. C/W CW/AM/SSB filters FM board. $1500 SG402 RF-sig gen SG402A audio sig gen $150 each. 3 EL 15 M monoband Yagi $150 Eric VK1EP (06) 249 6437.

FOR SALE — NSW

• KENWOOD TH215A 2 metre handheld CTSS encode. DTMF. Program battery saver. 10 memories. Scanning brand new, with box, manual, aerial & battery pack. $450 o.n.o. Tony VK2JTS (042) 71 6811 after 6pm.

• 5 only UHF valves, 3CPN10A5/7815, 10 watt plate dissipation, 3000 MHz, & data sheet. (Add plate heat sink to obtain 100 watts) plate dissipation similar to 2C39 valve & 3CX100A5 $40 each. 2 valves "807" each $30. QTHR VK2AOU ph (02) 53 9789.

• LINEAR amplifier parts plate & loading capacitors air-var or vacuum var. socket tube chimney 4CX 1000 A or 4CX 1500B tank coils etc. (02) 918 3835 VK2DTR.

• LINEAR amplifier HF bands. Similar to 30-S1 COLLINS 4CX 1000A $2400 R1000 KENWOOD manual & packing $450 & cartage VK2DTR. (02) 918 3835.

• YAESU FL2100Z linear amplifier hardly used, manual, carton, two new spare 572B finals. $1400 negotiable. Please ring Ron VK2BW (02) 542 1514.

• YAESU FLDX400 TX $180.00 LAFAYETTE ham band only receiver model HA350 $150.00 TX sold to licensed amateurs only. VK2BPM (02) 623 3606 QTHR.

• ICOM IC202 2 metre SSB TXVR with linear satellite xtals $175 YAESU YC-221 digital display $45 KENWOOD TR2200 2 metre TXVR $80 Terry VK2XAS (02) 726 5652.

• FTDX 400 transceiver in working order. Valves ok $200.00 plus cartage Laurie Lawson VK2IX Rosewood PO NSW 2652. PH (069) 48 8321.

• YAESU transverter FTV700 VHF/UHF 144 MHz plus 430 MHz recently overhauled by agent $500 VK2IS QTHR (066) 52 3376.

• HF transceiver, Kenwood TS130S, 200W pep 80-10m. Faultless performer, WARC bands, mobile compact, 13.8v DC, $700, Ted VK2EZQ QTHR (02) 477.7834.

• DAIWA CNW518 2.5 kW pep antenna tuner cross needles never used $350 Lawrie VK2FIF QTHR (066) 28 0418.

• REDUCTION sale Kenwood TL922 linear HF-AMP as new $2100 plus freight insurance Lawrie VK2FIF QTHR (066) 28 0418.

• IC215 IC202 $130 ea. Courier CB, Ferris 5000 modified for 10 mtrs 40 chn $170 ea. Multi quarts 16 $130 all in good order with hand books DX100 RX $80. VK2AJY QTHR (043) 96 4553.

• AX 190 communications receiver $100 VIC-20 computer with CN2 cassette. 1515 printer. Disk drive 1541. 16k ram plus many extras. Complete $500 VKK2BKN QTHR (069) 72 2021.

• EC64, energy control Apple IIe compatible, 64k ram, one floppy disk drive Z80 card inbuilt, no software, $650 ono (02) 670 4422 (bus) (02) 670 4003 (ah) 1800-1900 hrs.

FOR SALE — VIC

• TOWER-13 metre self supporting galvanised steel. Currently on ground ready for transport to your QTHR (03) 435 7870 ah Greg Williams VK3VT.

• TEKTRONIX type 533A dual beam cro. Large lab instrument with handbook $190 H-P mod 608D sig gen. 10 to 420 MHz $175. CODAN mod 7113 power supply 240/12v 20A fully reg. $250. VK3ZJS QTHR ph (054) 28 6309.

• ANTENNA, TET443DX, four element quad band, 7/14/21/28 MHz, in fair condition but fault in 20 metre traps. $250 ono. Ernie VK3CEW, (03) 467 1503 or QTHR.

• UNIQUE opportunity to purchase house with approved tower permit five b/rooms ensuite lounge/din kit/family rumpus near sch/shops transport. Approx 25 sq. $260,000 enquiries (03) 842 5214.

• ICOM IC27A 2 metre FM transceiver c/w mobile bracket and instruction manual, dual VFOs, 9 memories and priority facility $375.00 firm VK3CCE QTHR ph (03) 509 1720.

• FT ONE Yaesu FM board fitted service manual operating manual. Looks good goes well. $1400. Ron VK3IW QTHR (054) 63 2227.

• ANTENNA W Wulf duo band Yagi ten and fifteen metres assembly and tuning details good condition $150. Vic VK3ABX QTHR (052) 59 2944.

NALLY tower self supporting wind up tilt over. Extensible to 14m. EC. $750 purchaser to arrange dismantle and transfer. Vic VK3ABX QTHR (052) 59 2944.

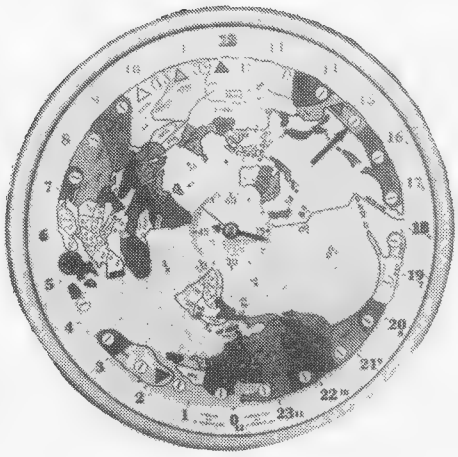
• YAESU FT-620 50 MHz transceiver. Good condition. No power supply required. $350 Martin VK3TGF (03) 589 5014.

• YAESU FT-107m HF transceiver including operator and service manuals and DMS option. Excellent condition $800 Emotator 502 CXX antenna rotator GC $150. Steve (03) 391 2346.

DECEASED estate, VK3VM. YAESU FT-2B 10 w VHF FM transceiver simplex and repeater crystals with matching Yaesu model FP-2 two way power supply, $150. YAESU Memorizer 10 w VHF FM synthesized transceiver, 1 memory, $200. KEN model KP202 hand held VHF FM transceiver, full set of crystals, with charger. $115. YAESU model FL2100 HF linear amplifier, with manual, $800. Satellite Tracking Antenna system two yagi (146/435 MHz), two rotators, with controllers, $500. Tech model TE22D audio generator, $50. Model CO-50 audio oscilloscope, $50. Micronta 12 v regulator, $40. All items in good working order. Enquiries to Ron, VK3AFW (03) 579 5600 AH, QTHR.

• COMPLETE DX station or of appeal to serious antique collector. Heathkit HW32 transceiver 20 metres only, 200 watt pep, one knob tune up, good vox, with h.d. p/s and manual. Excellent performer. 9 spare valves.

heathkit HA14 linear amplifier 1000 watt pep. 2-USA 572B valves. H.D. P/S switched 800 to 2000 volts and metered 1 amp. Heathkit monitorscope SB610 like new. To watch what's going on. Heathkit 100 K/c crystal calibrator. Plug in. Suits most heath models. Total Price complete $1270. Johnson Matchbox (aerial tuner) 10 to 80m. External directional coupler (SWR)



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• GECOL two metre hand held, ICOM clone. Thumb wheel frequency change. Extra 500 mAH battery, speaker mike, vinyl case, wall charger as new QTHR (059) 96 33580 $300 ono.

• COMM C64 PC, & power supply & 1541 disk drive joystick & printer & monitor & all cables & 7910 VH & VHF modem complete PC & PKT station many program/software $750.

• YAESU type F SSB generator used in the FL50 transmitter complete with valves xtal etc $25.
Ph (03) 32 9422

• APPLE 2+ compatible with floppy, Ham Pack III RTTY/CW/ASCII on board modem, software and manuals monitor, heaps of original software. Perfect condition. Bargain $350. Alan VK3BYG QTHR (03) 890 3894.

• ICOM 2A with 12 volt adapter and Nicads $290. ICOM 215 8 repeater and 2 simplex fitted $140. YAESU 708 hand held new nicads $290. PYE bantam one repeater fitted with case $50. Len VK3AQJ (03) 762 3522 QTHR.

• TELEPRINTER Creed model 7 dual speed, with manual free to a good home. Len VK3AQJ (03) 762 3522 QTHR.

FOR SALE — QLD

• FT-726R satellite tcvr works perfectly recent re-alignment with 2M, 70CM & satellite modules $1950. SX-200 scanner good cond. Covers 26-512 MHz $300 Lee VK4CXX QTHR ph (07) 375 5688.

• YAESU FL2100B HF linear $850 ono. Homebrew HF linear, pair 2 x 813s including power supply $500 ono. VK4WA QTHR ph (07) 814 2480.

• YAESU FT707 transceiver vgc $700 ph (071) 85 1240 after 6pm Pat VK4WHO.

• HL-35 144 MHz amplifier 32-30w gasfet preamp $150 David VK4ADF (07) 800 1406.

• FT290R as new $500. TS52OS good condition $500 5 band SAGA DENSHI MT-240X antenna new $700 SEIMENS 100 teleprinter and SEQTGP modem $150 5FP7 SSTV tubes. David VK4ADP QTHR.

• YAESU FRG 7700 perf cond. $450. DRAKE SSR1 fair cond. $100 SAIKO SCR 7000 scanner $250. QTHR. (076) 27 3384 a/h or (076) 27 3323 b/h.

• YAESU FL-2100B linear amplifier 80, 40, 20, 15, 10 m-bands, perfect working order, 2 near new 572B finals, $950. Bernhard VK4EBV (07) 354 3779 after 6pm.

FOR SALE — SA

• YAESU FL2100B little used excel cond $900. Jim VK5JI (08) 295 8094.

FOR SALE — WA

• HEAVY duty cyclonic butt section mast with tilt base. 3 section, 14m, with guys $250. Alek VK6APK (09) 448 5810.

FOR SALE — TAS

• SIG-GEN wayne kerr 10 kHz 10 MHz output +10dBm $120 2m antenna CUSH CRAFT RINGO $50 TE15 grid dip meter $75. Wagner 24v to 12v DC converter 20 amp $60 sailor 24v to 12v DC converter 8 amp $40 4 of valves 6KD6 $20 ea heath sig gen 310 kHz 220 MHz $110 valves QB3-300 $25 ea. Col VK7KW QTHR (003) 442761.AH

WANTED — NSW

• NEW member undertaking WIA course requires good comm receiver and morse key E Byrne "Elsinore" Goulburn 2580..

• CAN anyone loan catalogue or photocopy details of Telecom Coaxial Connectors expenses reimbursed. Art VK2AS QTHR (02) 416 7784.

• VALVE tester for mini series valves. Pay postage Laurie Lawson, VK2IX PO Box Rosewood NSW 2652 ph (069) 48 8321.

• URGENT valve type 6JH8 either new or working VK2APL QTHR ph (02) 457 9157.

• HITACHI WM.800.S tuning gang 3 band "car/port" Tr.radio (1970's) in cube abt. 35mm easily damaged removing INTACT. Possibly leave in set. "US" set ok. VK2AFU QTHR (02) 53 5774 or (047) 82 1617.

• PROP PITCH motor. Details to VK2OE PO Box 1914 Wollongong 2500, NSW.

• ALL mode 52 MHz 432 MHz T/Rs prefer old models let me know what you have. VK2AJY QTHR (043) 96 4553.

WANTED — VIC

• DEFUNCT YAESU FT7 for spares in particular front panel in good condition VK3CCE QTHR ph (03) 509 1720.

• KENWOOD TS-130S or TS120S xcvr prefer in excellent order. Ron VK3OM QTHR ph (059) 44 3019.
VK & ZL novice Dxers Dx net 21.192 Friday thru Mondays 05:30Z onwards all welcome. Rob VK3VOS.

• CIRCUIT diagram and component list for iambic keyer to suit Bencher paddle. Will cover all costs Geoff VK3BGC (03) 49 2719 ah.

WANTED — QLD

• HI-TECH CW decoder module for a Vic-20 computer. Write (or phone 378 8148 if local) stating price to L40228 P E Kelly, 96 Taringa Pde, Indooroopilly QLD 4068.

WANTED — WA

• REQUIRE copy of circuit/manual for AWA VOL TOHMYST Mod 56010 (1953?), and KYORITSU CR bridge/analyser mod K-129. Reimbursement paid. Ilmar VK6AIB QTHR or (09) 276 6637.

• HEWLETT PACKARD signal generator HP606A also rf vtvm HP410 B both immaculate unmodified complete with manuals VKK6MK (098) 44 1169 QTHR.

WANTED — TAS

• 2m all mode transceiver suitable base station must be good condition not h/held Ray VK7RK QTHR (003) 44 1849.

HAMADS

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines free to all WIA members, ninth line for name and address Commercial rates apply for non—members. Please enclosed a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.
*Please enclose a self addressed stamped evelope for acknowledgement that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $22.50 for four lines, plus $2.00 per line (or part thereof) Minimum charge — $22.50 pre—payable.

State: .....

❑ Miscellaneous

❑ For Sale

❑ Wanted

Name: .....

Call Sign: .....

Address: .....

.....

Solution to Morseword No 38

	1	2	3	4	5	6	7	8	9	10
1	—	•	•	—	—	—	•	•	•	•
2	•	—	•	•	•	—	•	•	•	•
3	•	—	•	•	•	•	—	—	•	—
4	•	•	•	•	•	—	•	•	•	•
5	•	•	•	•	—	—	—	•	—	—
6	—	•	—	•	•	—	—	•	•	•
7	•	—	•	—	•	•	—	—	•	—
8	—	•	—	—	•	—	•	•	—	•
9	•	—	—	•	—	•	•	•	•	•
10	•	•	•	•	—	•	•	—	—	•

Across: 1 tugs 2 ruse 3 leak 4 hens 5 how 6 kepi 7 arak 8 taker 9 weds 10 Senate

Down: 1 dice 2 pear 3 Ivan 4 bud 5 drew 6 gore 7 Eros 8 uvea 9 evert 10 inks

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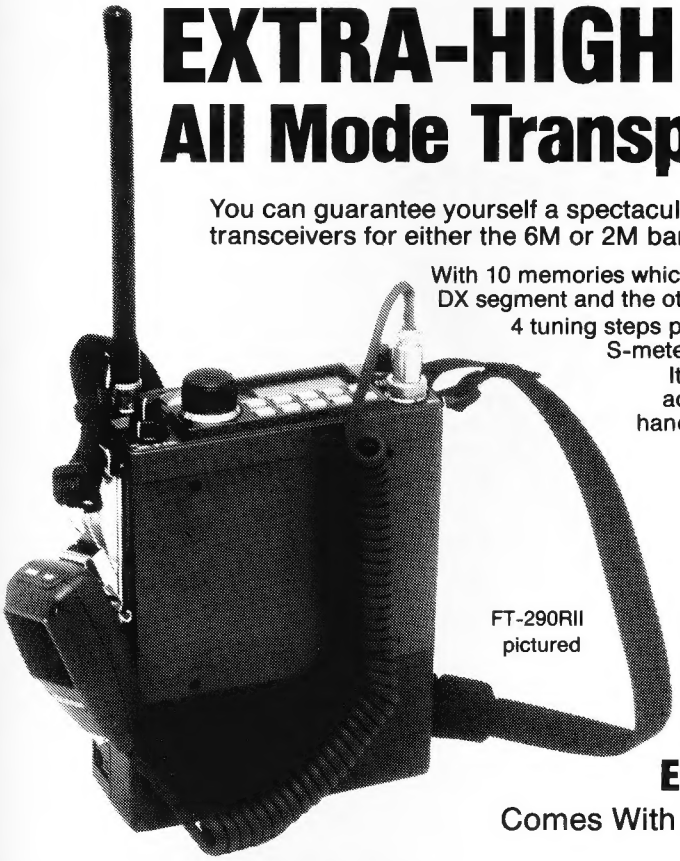
You can guarantee yourself a spectacular season with these all mode, multi—purpose transportable transceivers for either the 6M or 2M bands!



FT-290RII pictured

With 10 memories which store mode and repeater offset, 2 independent VFO's (set one on DX segment and the other on FM segment), all mode squelch, noise blanker on SSB/CW, 4 tuning steps per mode, 2.5 watt output power (plus selectable 250mW), analogue S-meter and PO meter, and full functions for operation through repeaters. It's easy to operate with just three knobs and 10 buttons which allow access to all functions quickly and easily. The units are supplied with hand microphone and antenna. PLUS — they now come complete with FBA-8 (9x'C' size) battery holder for shoulder-carried portable operation at no extra charge!

See A.R.A.review Vol.12, issue 5

6 Metre — FT-690RII Covers 50-54MHz. Channels steps SSB/CW-25/100/2500Hz. With telescopic whip antenna and microphone Cat D-2874

2 Metre — FT-290RII Covers 144-148MHz and comes with rubber duck antenna and microphone. Cat D-2875

Either version $799 ea

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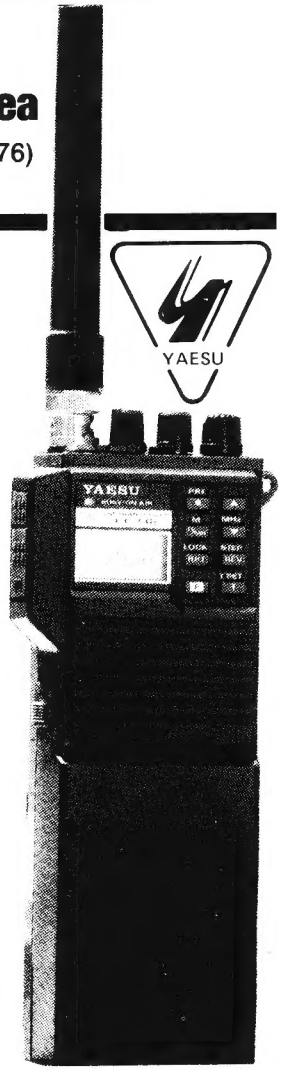

Superb performance on the 2m band with all the reliabiity you know you can expect from Yaesu. The FT-23R is tiny in size, only 55mm x 32mm x 139mm, yet this handheld packs more punch than you'd believe possible.

It's fully micro-processor controlled with 10 memories (7 memories can even be programmed for non-standard repeater shifts), repeater splits, pushbutton or manual scanning (busy/memory/priority), 1MHz up/down stepping, up to 5 watts output (with 12V DC) and more.

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WITH FULL 2 YEAR WARRANTY

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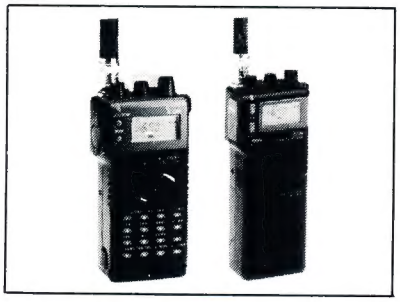
ICOM's amazing new mini FM Handhelds

The minute you see and hold one of the Icom "S Series" mini handhelds you'll agree with our thought that "bigger is not always better and smaller is not always less".



By reducing the size of our product, maintaining high standards of quality and production and constantly improving our range, Icom's business continues to grow.
So, the smaller we get, the better we get.

IC-2SAT, IC-4SAT, IC-24AT
Overall, Icom's family of tiny miracles, the 2SAT, 4SAT and 24AT give the Handheld enthusiast ease of operation through the convenient, multi-function keyboard. Delivering a full 5W output (at 12V) they feature clear, backlit function displays, splash resistant design and durable construction for outdoor use. One of these models is bound to suit your application, camping, skiing, in the field or vehicle.
Use with built-in, rechargeable NiCd batteries (IC-2SAT, IC-4SAT only) or external power supply without having to use DC-DC converters, just the optional cigarette lighter cable or mini. power cable.

IC-2SA
A super multi-function hand held with strong appeal for veterans, the 2SA is also the perfect way for newly licenced Amateurs to get started. This 144 MHz FM transceiver delivers 5W output (at 12V) with the optional BP-85 battery-pack, 40 memory channels, automatic power saver, LCD readout, operation from battery or external 12 volt DC supply. A PTT lockout switch is provided to prevent accidental transmissions. Amazingly its tremendous versatility and wide variety of functions are simply controlled by just six switches and three controls. An interesting and detailed colour brochure will be sent to you on request – call now for the name of your nearest stockist.

IC-24AT
Two Radios in one?

Would you believe a full dual-bander in the palm of your hand? Yes, full crossband duplex with 40 independent (simplex, 20 duplex) memory and 2 call channels, 5 watts out put from 12 volts direct power!
With all its features, you'd think the 24-AT would be quite a handful – and it is – almost. Even with its battery pack it only weighs 340gm but still gives you 6 scan functions, priority watch and built-in clock with a timer function.
We know you can't wait to find out more about our latest triumph in design and miniaturisation, so call us now for a free colour brochure giving full details on the 24AT and ask for the name of your nearest stockist.

For further information call Icom free on 008 338 915

Melbourne callers (03) 529 7582 Icom Australia Pty. Ltd., 7 Duke Street, Windsor 3181.
Icom Australia's warranty is only applicable to products purchased from their authorised Australian Dealers.

ICOM

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Please rush to me your brochure on the ☐ 2SA ☐ 2SAT ☐ 4SAT ☐ 24AT and the name of my nearest Icom stockist.

SEND TO: Freepost 15, Icom Australia Pty Ltd, Windsor, 3181 (no stamp required).

Mr., Mrs., Ms. ..... Company ..... Title .....

Address ..... Suburb .....

City ..... Post Code ..... Phone No. ..... NCAA 4641 AR

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